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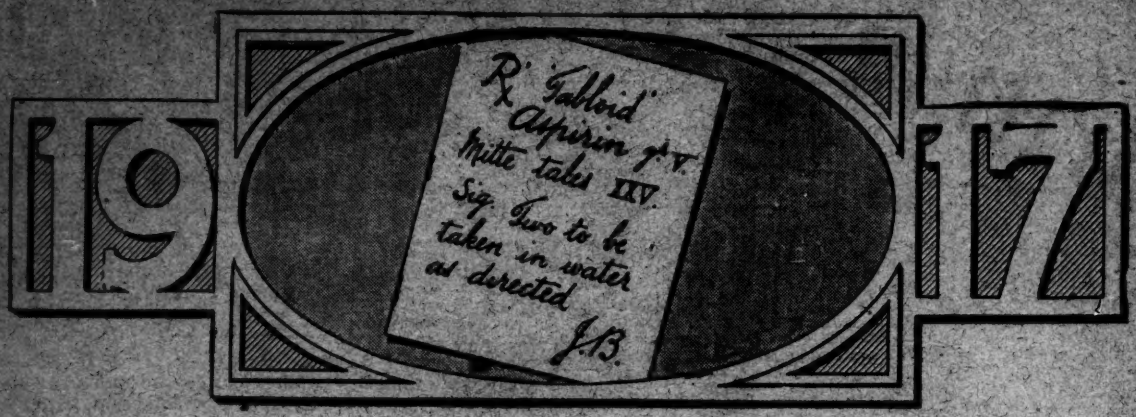

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British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, JANUARY 6TH, 1917.

Lectures
ON
THE EARLY DIAGNOSIS AND TREATMENT OF SYPHILIS.

By JAMES H. SEQUEIRA, M.D., F.R.C.P.Lond., F.R.C.S.Eng.,

PHYSICIAN TO THE SKIN DEPARTMENT AND LECTURER ON DERMATOLOGY, LONDON HOSPITAL; HONORARY CONSULTANT IN DISEASES OF THE SKIN TO THE MILITARY HOSPITALS IN LONDON.

[Abstract.]

The object of this course of lectures is not to set forth anything new, but to indicate certain practical points raised by the crusade against venereal disease, and especially the assistance which general practitioners and the hospitals can give to the measures introduced by the Local Government Board and the county councils. The early diagnosis and treatment of syphilis may be considered from two points of view—(1) that of the cure of the individual patient, (2) that of preventing the spread of the disease in the community. The second point of view, that of the community, is that which is specially at issue at the present moment—that is to say, we are to consider the early detection and the treatment of syphilis as public health measures. While we are dealing with the disease from this aspect we are at the same time endeavouring to effect a cure in the individual, but as a matter of practice we find that the two efforts do not quite coincide, for it is a much easier matter to render an infected patient non-infectious than to cure him of his disease.

To obtain the best results syphilis must be diagnosed early, and it is in this respect that we can claim that great advances have been made in recent years. In the first place, we must get rid of a practice which my experience shows me is still prevalent—that is, in a case of doubtful primary infection to wait until the so-called secondary manifestations develop. Let us always have this in our minds—the very presence of these secondary manifestations means a generalized infection. I know that in many instances when we see a patient with a chancre he is already the victim of a generalized infection, but we must abandon the expectant attitude. We must try and make a diagnosis at the earliest possible moment. Every day is of importance. Experience will help us to know what to look for, what mistakes to avoid, and by actual examination of the serum of the primary lesion we are able to demonstrate the *Spirochaeta pallida* in the majority of *untreated* primary lesions.

The Primary Infection.

The primary infection may be genital or extragenital. The spirochaete enters through some crack or fissure of the skin or mucous membrane, and an inflammatory reaction occurs after a latent interval. This reaction is the "chancre," and it usually appears from three to five weeks after contagion, but it may be earlier or later, the extremes being ten days and three months.

In *the male*, genital chancres occur on the side of the frenum, on the prepuce and glans, and in the sulcus behind the glans. Chancres at the meatus urinarius are rare, and sometimes a meatal chancre may invade the urethral canal. Multiple syphilitic chancres are not very uncommon. A case of two chancres on the body of the penis was shown at one of the lectures. Occasionally the primary lesion is on the skin of the pubic area or on the scrotum.

In *the female*, the labia majora and minora, the fourchette, clitoris, and meatus urinarius are the most common sites. Chancres on the cervix uteri are not infrequent, but the vaginal wall is rarely the site of a primary lesion.

The primary bubo is a single large indurated gland, with occasional small shotty glands in its neighbourhood. It has no tendency to suppurate.

Extragenital Chancres.

These are commonest on the face and fingers. Kissing is the usual cause of lip chancres, but drinking vessels, tobacco-pipes, and blowpipes used in glass-blowing are all known to have conveyed the infection. (During the course four cases of lip chancre were demonstrated.) The next most common sites are the chin, eyelids, nose, cheeks, and ears. In the mouth the tongue and tonsil are most often involved. Finger chancres commonly occur about the nails. I have seen them in doctors, surgical dressers, midwifery nurses, and dentists. I have seen a case of primary chancre of the nipple and anal chancres also occur.

Extragenital chancres are usually larger than the genital sores, and when situated in mucous cavities ulceration occurs early and the surface of the ulcer is often covered with a pseudo-diphtheritic membrane. The primary bubo in extragenital chancres is always large and hard, and has no tendency to suppurate, and these points are often of value in the differential diagnosis. It is, however, of the highest importance to have the serum of a doubtful lesion examined for spirochaetes without delay.

Diagnosis of the Primary Chancre.

In a very early chancre there may be little induration, but as a rule when the patient comes for examination the lesion has a characteristic cartilaginous hardness which, with the hard bubo, is sufficient to make a diagnosis. If the lesion has been untreated, the surface may be scraped, or what is better, a fine pipette should be plunged into the substance. The serum obtained is placed on a slide with a few drops of normal saline solution, and examined by a $\frac{1}{8}$ in. objective by dark background illumination. The white spirochaetes are seen in motion crossing the field.

Another method of demonstration is to mix the serum with a solution of collargol (collargol 1, distilled water 19) as suggested by Harrison. A film is made by spreading the mixture on another slide and the preparation is allowed to dry. The examination is made with a $\frac{1}{12}$ in. oil immersion lens. The spirochaete shows up white on the dark background of the collargol solution, but it is not so easily recognized as in the former method, as it is not in motion.

The serum may be collected in a capillary tube such as is used for vaccination, and, the ends being sealed, may be sent through the post to a laboratory for examination. I do not recommend this method, which should only be employed if it is impossible to send the patient to the bacteriologist for examination.

The affections which may lead to error in the diagnosis of genital chancres are (1) traumatic ulcer, (2) herpes genitalis, (3) soft sore, (4) lichen planus. All these conditions are distinguished by the absence of induration and of the indurated bubo. Soft sores are usually multiple, the inflammatory reaction is much more acute and appears a few days after infection. The bubo in ulcus molle is usually tender, with surrounding painful swelling, and it tends to early suppuration. In herpes the lesions are superficial. They begin as vesicles which rupture early, producing painful non-infiltrated erosions. They appear

within a few days of coitus, and in some cases independently. There is often a history of recurrent attacks. Lichen planus of the glans penis is rare, but I have seen two cases in which a diagnosis of syphilis was made. The lesions are flat, shining, polygonal spots with no induration. There may be an eruption of the same type on the limbs and extremities. In exceptional cases lichen planus is limited to the penis. There is no bubo. Recurrence of induration in the site of an old chancre may take place from two to five years after syphilitic infection, and may lead to a suspicion of reinfection.

Extragenital chancres on the lips are usually not difficult to recognize if the condition be kept in mind. The finger sores may be thought to be whitlows, but any such condition in a medical man or midwifery nurse should be suspect and examined for spirochaetes. A case of localized beard ringworm which had been diagnosed as primary syphilis was shown. There was no bubo, and a microscopical examination showed the hairs to be infected with an ectothrix fungus. A case in which a primary sore of the nipple was diagnosed as cancer was described. The mistake should not have been made, as the patient had a general macular eruption and polyadenitis.

Stage of Generalization (Secondary Stage).

The secondary stage, or stage of generalization, begins from five to eight weeks after the appearance of the primary sore. It must be remembered that in women the history of the primary affection is usually lacking, and in men it may be overlooked or forgotten.

It is important to bear in mind that in the secondary stage there are general symptoms, and it is dangerous to make a diagnosis on the skin eruption alone. There is often an irregular pyrexia. The patient is usually anaemic, the lymphatic glands all over the body are enlarged, hard, and shotty. The glands behind the sterno-mastoid, in the occipital and mastoid regions, and the epitrochlear glands should be examined in all cases. Albuminuria may occur.

The patient complains of loss of strength and wasting, and of headache and pains in the limbs, muscles, and joints. Sore throat may be the symptom for which advice is sought, and I have known fall of hair bring the patient for the first time to the consulting-room.

The Secondary Eruption.

The special features of the eruption which should lead to a suspicion of syphilis are:

1. *Polymorphism.*—The lesions are often of several types; macules, papules, and scaly spots coexist, but although the type varies, the size of the spots varies very little. One does not see large diffuse lesions.

2. *Dissemination.*—As a rule the eruption is widely spread and copious.

3. *Absence of Itching.*—Subjective symptoms are usually absent. The eruption appears insidiously, and itching is uncommon, but it must be borne in mind that this feature is not constant, and, moreover, a patient may be suffering from concomitant scabies or pediculosis.

4. *The Characters of the Individual Lesions.*—These are round, or tend to be round, and they are often grouped or in rings. Except in the case of the macular eruption they have a reddish-yellow, coppery, or hammy colour.

The various types of secondary eruption were briefly described, the remarks on this head being illustrated by cases and by coloured illustrations and photographs shown by the epidiascope.

Differential Diagnosis.—Special attention was directed to—

1. The *macular syphilide* (or roseola), which is the earliest eruption in the stage of generalization. It occurs about six weeks after the chancre, and lasts from three weeks to a couple of months, and sometimes recurs. The spots are rose-coloured, round or oval, rarely larger than a threepenny piece, and all about one size. There is no infiltration, and scaling is absent. The trunk, neck, and limbs, and the palms and soles are affected. This eruption may escape the notice of the patient, and if the examination be made in artificial light it may not be observed by the medical attendant.

Of the acute specific fevers, morbilli and rubella in the adult rarely cause difficulty.

Pityriasis rosea is often mistaken for the macular syphilide. This eruption also occurs on the trunk and adjacent parts of the extremities. The lesions are oval or lozenge-shaped, and also small round spots. They are pink in colour, and are covered with fine scales attached at the periphery and free towards the centre. The spots are of varying size, and there is frequently the history of a "herald" spot, which, at the time of examination, is of larger size than the other lesions. The patient often complains of itching, there are no general symptoms, no polyadenitis, and no mucous membrane lesions.

Characteristic examples of pityriasis rosea and the macular syphilide were demonstrated.

2. The *papular syphilide* may appear on the rose spots or independently. The commonest type is *lenticular*, the lesions being round, red or ham coloured, raised firm spots with a shiny surface, and often with a ring of fine scales round the margin. The trunk, limbs, face, palms, and soles are affected.

Lichen planus is not infrequently diagnosed as a papular syphilide, but the characters are strikingly different. The lesions of lichen planus are polygonal, flat-topped, and shiny. They have a peculiar lilac or violet tint, and are not infiltrated. Itching is usually a prominent feature. The commonest sites of the eruption are the fronts of the forearms, legs, and the thighs, but sometimes the whole of the trunk and extremities are involved. Should the observer be led to suspect syphilis he will naturally examine the buccal mucosa and pharynx, and it is important to remember that in at least one-half of the cases of lichen planus the buccal mucosa is affected, but the lesions are white papules, streaks, or patches. There is no ulceration of the fauces, and there is no general enlargement of the lymphatic glands.

3. The *squamous syphilide* is an infiltrated papular lesion of coppery or ham colour, capped with scales. This type is common in the flexures. It may be mistaken for psoriasis. In *psoriasis*, however, the lesion is not infiltrated, and the scaling is of a bright silvery type, and as a rule some patches will be found in the characteristic sites—the extensor surfaces of the elbows and knees. Commonly, also, larger diffuse areas are seen in psoriasis, a type of eruption never seen in syphilis. There are no mucous membrane lesions in psoriasis and no general enlargement of the lymphatic glands. It must not be forgotten that psoriasis is a very common disease, and may coexist with syphilis. The history of previous attacks will here be helpful in the diagnosis.

The *seborrhoides* are also sometimes mistaken for the scale syphilide. A case in which the error was made was demonstrated. The seborrhoide consists of rounded spots or circinate lesions covered with greasy scales. The scalp is commonly affected and red areas covered with greasy scales may spread on to the margin of the forehead producing the "corona seborrhoica." On the trunk the seborrhoides show a predilection for the middle line, the sternal and submammary regions, and the interscapular furrow. Itching is common. The mucous membranes are unaffected, and there is no general enlargement of the lymphatic glands.

4. The *follicular syphilide* is an eruption of miliary, dull red hard papules confined to the hair follicles. They are often capped with a dry scale and sometimes become pustular.

Severe cases of *acne vulgaris* involving the back may be mistaken for the follicular syphilide, especially if there are numerous infiltrated lesions and many scars. As a rule there is a long history and comedones or "black heads" are found in large numbers. Acne does not cause general enlargement of the glands and there are no mucous membrane lesions. Syphilis, of course, may occur in a patient suffering from acne vulgaris.

5. *Rupia* is an ulcerative type of secondary syphilide occurring in cachectic and alcoholic subjects. It is comparatively rare. The rupial lesion is a round or oval ulcer with steep sides and a purplish margin, and a soft base from which exudes a blood-stained pus. This pus dries to form a characteristic limpet-shell crust. It heals with deep scarring.

The only affection liable to lead to error is neglected patches of psoriasis with masses of brownish scale. On removing the scale the psoriasis lesion presents a number of bleeding points, but there is no ulceration, as in rupia. Psoriasis does not leave scars.

6. *Syphilitic keratodermia* demands a few observations. The lesions are characterized by an increase in the horny layer of the epidermis of the palms and soles. They often form gyrate figures of a dull coppery colour covered with a horny layer. They may be mistaken for chronic eczema or psoriasis. In any case of doubt the blood should be examined by the Wassermann test.

7. *Syphilitic Alopecia.*—In the first year after infection the hair tends to fall. In some cases all that is noticed is a general thinning of the hair, but in others there are patches of baldness. These are often characteristic, the bald areas being of small size, as if the hair had come out from numerous spots about the size of the tip of the finger.

I have had cases of this type sent to me as alopecia areata. In the latter affection the bald areas are of round or ovoid form, quite smooth, and tend to spread peripherally. At the margin one is often able to demonstrate hairs thicker at the distal than the proximal end.

8. *Pigmentary Syphilide.*—As an aid to diagnosis I specially desire to draw attention to a curious pigmentary affection occurring in the first two years of syphilis. It consists of greyish or brownish staining of the neck, especially on the lateral aspects. From its situation it is called the "Venereal Collar." The margin of the pigmented area is ill defined, but the surface is studded with white spots, with a sharp outline varying from a split pea to a shilling in size. The dappled appearance is striking and characteristic. It occurs almost exclusively in women. Arsenical pigmentation resembles it closely, but is almost always found on the trunk—that is, on covered parts.

9. Certain *drug eruptions* may be diagnosed as syphilis. I have known this occur in the case of copaiba, the association of gonorrhoea with a rash leading to the error. The copaiba rash is all of one type, resembling urticaria or morbilli, and there is itching. I have also known an eruption due to iodides diagnosed as syphilis. The iodide eruption is bullous, and commonly affects the face and neck. The vegetating syphilide may be mistaken for an iodide eruption. The history and general symptoms should help in the diagnosis, and in any doubtful case the blood should be tested.

Lesions of Mucous Membranes.—The mucous membrane lesions of syphilis are usually very helpful in making a diagnosis, and on no account should an examination of the fauces, buccal mucosa, tongue, and anal region be omitted. The following points are worthy of notice: Aphthae are rounded yellow, painful superficial lesions occurring on the gums and buccal mucosa. Herpetic lesions in the mouth are also painful. Neither are associated with an eruption on the skin nor with generalized induration of the lymphatic glands. Erythema multiforme, with extensive lesions in the mouth, may be diagnosed as syphilis. The skin eruption especially affects the extremities over bony prominences. There is no general enlargement of the glands, and there is often a history of previous attacks. Condylomata have been mistaken for piles, but the error is due to want of care in examination.

Some Conclusions.

I would remind you that syphilis, as Hutchinson taught us, is a great imitator. *Always* have syphilis in your mind, and particularly when you see what looks like a common variety of eruption with unusual distribution, and where there is an eruption of several types co-existing. Do not make a diagnosis on the rash alone; look for confirmatory signs in the glands and the mucous membranes. Do not pay too much attention to the history, and in any doubtful case take a specimen of the blood and send it to an expert for the "Wassermann" test. Here let me give you some figures as to my own experience with this test. For some years I have sent cases, some hundreds, to Drs. Fildes and McIntosh for "Wassermann" examination. Of cases in which I was clinically certain of syphilis the following results were obtained:

Primary syphilis	...	W.R. positive in 90 per cent.
Secondary syphilis	...	W.R. positive in 99 per cent.
Tertiary syphilis	...	W.R. positive in 95 per cent.
Congenital syphilis	...	W.R. positive in 100 per cent.

(To be continued.)

Lectures
ON
DISEASES OF THE MALE URETHRA.

BY
FRANK S. KIDD, B.C., M.B.CANTAB., F.R.C.S.,
ASSISTANT SURGEON, LONDON HOSPITAL, AND SURGEON TO THE GENITO-URINARY DEPARTMENT.

LECTURE I.—URETHRITIS.

Etiology.

Urethritis is in most instances established by the direct implantation of a specific bacterium, the gonococcus of Neisser. Do not forget that it may be caused by other germs, such as colon bacilli, streptococci, staphylococci, and so forth. Investigate all urethral discharges under the microscope. In a consecutive series of one hundred cases, a gonococcus was found in eighty-four, a streptococcus in five, a staphylococcus in eleven cases.

How is the disease contracted by the male? It is contracted in the majority of cases after connexion with an infected woman. Do not forget that a man may contract the disease even though he has used a condom. I have known many instances of this. He probably infects himself by soiling the urethra with the fingers after he has removed the condom, or by washing the penis afterwards in an infected utensil, or the condom may have broken. Urethritis due to other germs than the gonococcus may be contracted from a woman who is menstruating, from a woman who has non-specific vaginitis set up by causes such as an unclean pessary, or by rectal coitus. I have instances of all these. Before the war I had seen only a few undoubted instances of urethritis contracted from infected towels, bathing drawers, or water-closets. Since the war I have seen a number of cases contracted from these sources, as the soldiers are often thrown together at the front or even in camp at home under conditions which favour such contagion.

Spontaneous or Haematogenous Urethritis.

I have on several occasions observed a man develop a slight urethritis at the onset of measles, no germs being distinguishable in the discharge, but only pus and epithelial cells. These discharges have cleared up without treatment. I have also observed a case of mumps that began with orchitis and slight purulent urethral discharge. I have also observed several cases of spontaneous urethritis due to the colon bacillus in men who were very run down, who had not been exposed to infection, and who developed urethritis with or without simultaneous attacks of haematogenous prostatitis and pyelitis.

Surgical Anatomy of the Urethra.

An undertanding of the surgical anatomy of the urethra is essential in the study of urethritis (Fig. 1).

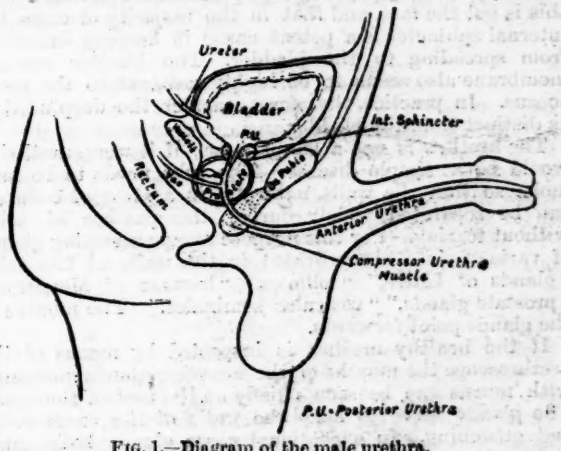

Fig. 1.—Diagram of the male urethra.

The first conception to get into your minds is that the urethra is divided into two portions, the anterior urethra and the posterior urethra.

The point of division is the compressor urethrae muscle ("cut off" muscle) which surrounds the membranous portion of the urethra.

The Anterior Urethra.

In front of the muscle lies the anterior urethra, 6 in. long. This consists of:

1. *The meatus*, which is the narrowest portion of the canal, the calibre being 24 Charrière in average individuals.
2. *The fossa navicularis*, 1 in. long and containing usually one large gland on the roof, the lacuna magna. (Calibre 30 to 35 Charrière.)
3. *The penile or pendulous portion* distal to the scrotum, containing on the roof numerous glands or follicles, and being very resistant to dilatation. (Calibre 28 to 30 Charrière.)
4. *The bulbous portion* extending to the compressor muscle, containing only a few large glands usually on the roof and being very dilatable (calibre 40 to 45 Charrière). The mouths of Cowper's glands open on the floor of the bulb, but these can hardly ever be seen by the urethroscope, and in my experience are only found infected on the very rarest occasions.

The compressor urethrae is a powerful voluntary muscle which passes into spasm on the slightest provocation, as by the stimulus of antiseptics or instruments on the mucous membrane. It can only be relaxed by an effort of will or by desensitizing the mucous membrane with novocain or stovaine.

There are no glands of any importance opening into the membranous urethra, and this part of the canal hardly ever acts as a reservoir of latent urethritis, though it is sometimes the site of troublesome strictures, soft and hard.

The Posterior Urethra.

This is between one and two inches long, and is one of the most highly sensitive and highly absorptive mucous membranes in the body. Half a grain of cocaine in the deep urethra is absorbed in a few minutes and may kill a patient. A few bacteria carried into the deep urethra by an unclean instrument will set up a rigor and may even lead to death from septicaemia. Treat the deep urethra with the utmost care, gentleness, and respect. The deep urethra has a calibre of 35 to 40 Charrière. The roof and sides are seldom provided with glands. On the floor lies the verumontanum—a sensitive erectile structure on the apex of which open the ejaculatory ducts guarded each by a powerful sphincter muscle. On each side of the verumontanum open numerous ductules of the prostatic glandular tubules. The uterus masculinus lies in the centre of the verumontanum, and is a bogey often cited to explain failure to cure. Actually it is very seldom a factor of importance in keeping up a discharge.

The posterior urethra is cut off from the bladder by a weak involuntary muscle, the internal sphincter of the bladder. It used to be taught that the bladder and deep urethra were practically one; and that the internal sphincter did not keep the urethra shut off from the bladder. I am convinced from practical observation that this is not the fact, and that in the majority of cases the internal sphincter is a potent cause in keeping urethritis from spreading to the bladder. The bladder mucous membrane also seems to be highly resistant to the gonococcus. In practice, therefore, consider the deep urethra as distinct from the bladder.

The urethra is not a simple tube; if it were, urethritis would be a simple disease. The tube needs to be kept moist so that the walls, naturally in a state of collapse, can be separated widely during the passage of urine without tearing. For this purpose mucus-secreting glands of various sizes are provided in the walls of the tube, "glands of Littre," "follicles," "lacunae of Morgagni," "prostate glands," "vesiculae seminales." The mouths of the glands point forwards.

If the healthy urethra is inspected by means of the urethroscope the mouths of the secreting glands glistening with mucus can be seen chiefly on the roof of the canal. The glands serve to keep the walls of the canal moist and glistening. In exceptional cases glands both small and large are found on the floor or sides of the canal.

The mucous membrane is lined by epithelial cells stratified in the fossa, but further back columnar. Underneath is found a submucous areolar coat, rich in elastic fibres and blood vessels, which merges with the muscular and cavernous tissues of the corpus spongiosum. Directly underneath the submucous coat is a well-defined layer of unstriped muscle fibre disposed in circular rings. These rings are very obvious on urethroscopic examination. Underneath this layer lies the cavernous tissue of the corpus spongiosum. The lymphatics of the front portion of the urethra lead to the glands of the groin on both sides. The lymphatics of the deep urethra and prostate lead to the hypogastric and external iliac glands, and so to the lumbar glands.

Look upon the urethra, then, as a tube divided into two parts:

1. *The anterior portion*, non-absorptive and easily accessible.
2. *The posterior portion*, very sensitive, and hard to get at.

Look upon these two portions of tube not as cylinders with smooth walls, but as cylinders with numerous perforations in their walls, these perforations leading to blind tubes or glands of varying length and complexity.

URETHRITIS (GONOCOCCAL).

PATHOLOGY OF THE LIVING AS OBSERVED CLINICALLY.

Incubation Period.

After implantation in the fossa navicularis, the gonococcus lies apparently dormant for a period of two to seven days, during which time it is in reality multiplying itself until it becomes many myriads of germs. In 180 cases the average incubation period was seven days, the shortest one day and the longest twenty one days.

Development of the Disease.

At the end of the incubation period the germs, now present in vast quantities, elaborate poisonous bodies which irritate the tissues and set up inflammation. As a result an exudation is poured out of the blood vessels into the urethra, which exudation appears at the opening of the urethra as a yellow purulent discharge. The urine passing over the inflamed urethra causes pain. These two facts inform the victim that he has contracted the disease. During the incubation period the victim does not know that he or she has any infection, and in many of my cases I have records that connexion with other persons have taken place during this period, with consequent spread of the disease. In this way married men or women who have gone astray have given the disease to their wives or husbands by going with them during the incubation period before they have realized that they are in fact infected or infectious. In 180 cases 24 married men were found, six of whom had thus given it to their wives. Of these 24 married men, it was known that 15 had contracted it from women other than their wives. The remainder had undoubtedly got it from their wives who had gone astray.

Do not be deceived because the incubation period seems to have been unduly prolonged. In reality the patient has had a mild discharge and has not noticed it, and only a bout of alcohol or excessive coitus or some debilitating factor has brought on a more profuse and therefore obvious discharge.

Rate of Ascent.

In cases of urethritis the germs ascend the urethra at varying rates. If the germs are very virulent or if the patient is very run down in health and indulges in excessive alcoholic or sexual excitement, then the germs may ascend quickly and reach the deep urethra in a few days. In the average case it is ten days to a fortnight before they get as far as the deep urethra, and in some cases three or four weeks. How the gonococcus ascends we do not know. All we know is that if we use the urethroscope during the early acute stage (a practice I do not advise) we can see quite clearly how high the inflammation has spread. We see the walls of the tube highly inflamed for some inches and then quite suddenly we see the mucous membrane pale and healthy. Evidently the germ grows steadily upwards in the ordinary cases; but in hyper-acute cases it ascends by some process the nature of which we do not exactly know.

As the gonococcus spreads up the canal it sinks into the mouths of the glands and also sinks into the areolar and muscular tissue beneath the basement membrane, and in severe cases it reaches the dorsal lymphatics and the glands of the groin. The blood vessels dilate and pour

forth plasma and pus cells (inflammation). The mucous membrane can be seen to be red and swollen and bathed in pus; and pus can be seen pouring out of the glands of Littre, the glands themselves being swollen so that their bodies project into the lumen of the canal.

When the germs reach the deep urethra (58 per cent. in 180 consecutive cases that came up to be examined, but almost invariably in untreated cases) they penetrate the tubules of the prostate gland and the seminal vesicles, so that these glands can be felt by a finger in the rectum as hot and swollen. In 15 per cent. of posterior cases the germs spread to the testicles, but they very seldom reach the bladder, and hardly ever the kidneys. The only evidence of bladder infection is greatly increased frequency of micturition. Most cases labelled as gonococcal cystitis are really cases of deep urethritis. The bladder, unlike the urethra, is highly resistant to the gonococcus.

If a case comes to us before the disease has spread to the deep urethra, and if we at once institute irrigation or injection treatment, then it is most exceptional to find the disease spreading at a later date to the deep urethra. It is most important to recognize this fact. If a large number of cases in the early acute stage are observed clinically it will be noted that on the average it takes about ten days to a fortnight before the germs reach the deep urethra and prostate, though there are exceptions to the rule in hyperacute cases.

This is a fact of vital importance.

Treatment of Early Anterior Urethritis.

During the early stages the germs, being confined to the anterior urethra, are easily got at by means of antiseptic applications, and can be got under control and prevented from spreading to the deeper parts. The disease can then be cured in a few weeks often, indeed, in a week. This is a fact that has not been widely appreciated. A fatal doctrine has been taught in many of the English schools—namely, that in the early acute stages injections should not be used. This is a most pernicious fallacy and needs to be eradicated from the mind of the profession. Evidence gathered by modern clinical observers goes to disprove this fallacy. Clinical experience shows that it is in the early stages that antiseptics properly applied in suitable strengths can cure the disease quickly. Antiseptics used to be applied in unsuitable strengths, and that is why this fatal doctrine grew up.

Pace Almroth Wright no disease illustrates better than acute urethritis the favourable reaction of purulent tissues to the application of suitable antiseptics, and this reaction can be used as a constant and living proof of the fallacy of some of Wright's statements or "postulates"—for example, "These general truths are firmly based upon experiment. It can be demonstrated that none of our ordinary antiseptics extirpate microbes . . . in purulent discharges."[1]

Anterior urethritis if left alone or treated by vaccines, or irrigated only with salt solution, spreads rapidly upwards. If in the same purulent stage potassium permanganate in suitable strengths is applied to the suppurating mucous membrane of the anterior urethra by injections or irrigations, the discharge is at once lessened, and in a few days disappears, and with it the germs that caused the inflammation. In other words—

"It can be demonstrated every day that an ordinary antiseptic, potassium permanganate, in suitable concentrations can extirpate microbes (gonococci) in urethral purulent discharges."

These "general truths" may be firmly based upon experiments in the laboratory, but they are found not to hold in the out-patient department.

Spread to Posterior Urethra.

If a case is left alone or treated simply by rest in bed, medicines or vaccines, what happens? Or if a case comes to us in which the disease has already spread to the deep urethra, what happens? If we observe a large number of cases we find that almost invariably the disease spreads to the deep urethra and prostate in the course of ten days to three weeks, and sets up acute inflammation in this structure.

The inflammation in the deep urethra remains acute for at least five weeks from the first sign of urethral discharge, and very often for as long as seven or eight weeks.

During this stage of acute deep urethritis the patient is in a hyper-sensitized state, and it is very easy to upset the equilibrium between the germs and the tissues, and to set up blood infection. This explains why considerable wisdom, clinical knowledge, and judgement are required in the treatment of acute deep urethritis, and why such good results are obtained if the patient can be confined to his bed.

Chronic Stage: Carriers.

At the end of this period of five to eight weeks the inflammation suddenly dies down, and the patient seems to develop partial immunity; that is to say, he is no longer in a hyper-sensitized state, and he ceases to produce very much pus. It then becomes possible to employ strong treatment for the deep urethra, and it is much harder to upset the balance by unwise treatment. It is then safe for the patient to get about, take exercise, and try to get fit. At the same period the gonococcus clearly becomes modified also—that is to say, it ceases to produce an intense irritant poison, and does not easily invade the blood stream and irritate the body into producing a large amount of discharge.

A few cases undergo natural resolution at this stage, but only a few. The patient often thinks he is cured, as all burning and pain ceases, and urethral discharge is hardly noticeable. All the same, this state of mind is only due to lack of close observation. A careful observer will note a little gleety discharge in the morning on rising, or will notice threads in the urine, or even a slight turbidity of pus in the urine. A really careful, scientific, trained worker can soon detect the fact that a man is not cured but has passed into the chronic stage; or, in other words, has become a "gonococcus carrier." If he examines the threads he will find pus cells and a few gonococci in them. If he examines the prostatic secretion microscopically he will find pus cells and gonococci. If he uses the urethroscope he will find infected glands of Littre or patches of submucous infiltration, where the gonococci are still lurking under the mucous membrane and setting up patches of chronic inflammation (= early stricture or soft stricture). These facts can readily be detected by a trained clinical observer, but are usually conveniently ignored by those who are after short cuts to cure—a very fatal thing for progress.

In other words, there is a chronic stage in urethritis which has been largely neglected in the past both by patient and doctor, so that the patient is told that he is cured and goes about spreading the disease to other people. If this chronic stage did not exist, the gonococcus would have died out long ago. Very few people will copulate willingly when suffering from profuse urethral discharge, but they are only too ready to return to their old ways when they have entered the chronic stage of urethritis, especially if they have been told by their medical advisers that they need not worry about a slight gleet or a few threads, or have been told to "let it rip"—that classical phrase of the mentally inert.

NOTES ON SYMPTOMS AND SIGNS.

I do not propose in these lectures to describe in detail the ordinary symptoms of acute urethritis, such as burning and discharge and so forth, as they are sufficiently well known both to the doctor and to the layman. What I do want to emphasize here is that these are only the signs and symptoms of the early acute stages (five to eight weeks). What I want to bring to your notice is the importance of not neglecting the signs and symptoms of the chronic stage.

Gleet.

In the chronic stage there may be a slight gleet noticed only in the mornings ("*goutte militaire*," "*bon-jour* drop"), or there may be nothing more than a few threads in the urine. A man in the chronic stage may pass perfectly clear urine for weeks at a time, containing not a trace of pus or threads; yet in such a case if we massage the prostate and vesicles we may find the secretion full of pus cells and gonococci. This is particularly true when the disease is confined only to one vesicle. The mouth of the vesicle tends to become occluded and the gonococci may only come out during excessive coitus or after an excess of alcohol.

Chronic Prostatitis and Neurasthenia.

Another very important fact to note is the effect of chronic prostatitis on the general health. A man with chronic prostatitis may lose a stone or more in weight, may become severely neurasthenic, and so depressed as to be suicidal. This neurasthenic condition is often aggravated by a low meat free diet, which the patient has adopted on the advice of his doctor. All this vanishes with the cure of the prostatitis. Probably a chronic toxaemia is responsible, or it may be that subconscious irritation of the complex nerves of the prostate with their close emotional connexion in the mid-brain, may be the cause of the nervous depression. Remember that nothing helps so much in the cure of a chronic prostatitis as cheerful suggestion and attention to the general health. Sea air, a generous diet, and open-air exercise are the most important elements in success in treatment.

"Sciatica," "Lumbago," "Chronic Rheumatism."

Another clinical fact should be emphasized. I find that a very large number of cases labelled as chronic sciatica, chronic lumbago, chronic rheumatism, have their origin in an unsuspected gonococcal focus in the prostate or seminal vesicle. In such cases the doctor is often content to squeeze the urethra and if no discharge is obvious then he dismisses gonorrhoea as a possible cause. More careful observers may even look at the urine. But here again in most cases not even threads are to be seen, let alone pus. The only way to exclude chronic gonorrhoea as a cause of obscure rheumatism is to massage the prostate and vesicles and examine the secretion under the microscope. If pus is detected, then the cause has probably been found. If treatment directed to the cause is instituted, in six weeks to three months all the pains vanish and a brilliant cure is obtained.

Fever.

There is another clinical sign to which I would like to call attention. So long as the disease is confined to the anterior urethra we seldom, if ever, find fever. It seems clear that the anterior urethra is a highly resistant surface and does not allow the passage of fever-producing poisons into the blood. Once the disease has spread to the deep urethra fever is quite common, especially if the patient is not at rest in bed. The deep urethra is a highly absorptive surface and lets through at once the fever-producing poisons. Over and over again I have met with patients suffering from a deep urethritis who have been allowed to get about by their doctors with a temperature of 103° or 104° F. It has not occurred to their doctors that it is necessary to take their temperature. In the case of any other acute disease the temperature would be taken as a matter of routine, and no patient would be allowed to be up and about with such a high temperature. It should become a routine practice to take the temperature in cases of acute posterior urethritis, and if the temperature is raised above the normal the patient should be ordered to bed.

Another interesting fact is that in cases of chronic posterior urethritis which are not doing well a persistent subnormal temperature can often be noted. When the disease takes a turn for the better, simultaneously the temperature rises to normal and remains there.

Haematuria.

Haematuria is not an uncommon symptom at the onset of an acute posterior urethritis. Usually a few drops of blood are squeezed out at the end of micturition. If strong irrigations are exhibited in such cases a profuse haematuria may be set up. In such cases use only the mildest injections, for example, $\frac{1}{5000}$ potassium permanganate, and above all do not use a sound or a cystoscope.

Retention of Urine.

This is quite common at the onset of a hyperacute posterior urethritis. In such cases rectal examination always reveals a large abscess of one or both lobes of the prostate. Gentle pressure with the finger will empty the abscess a little, and the retention may at once be relieved.

REFERENCE.

[1] Treatment of Infected Wounds, British Medical Journal, June 3rd, 1916, p. 793.

DISAPPEARANCE OF MALIGNANT TERTIAN CRESCENTS FROM THE BLOOD FOLLOWING THE INTRAVENOUS INJECTION OF TARTAR EMETIC.

BY

SIR LEONARD ROGERS, M.D., F.R.C.P., F.R.S., I.M.S.,

PROFESSOR OF PATHOLOGY, CALCUTTA.

[PRELIMINARY NOTE.]

The discovery of the value of cinchona and quinine in malaria has been of incalculable value. Nevertheless, even quinine is not an ideal drug for the disease, because, although it rapidly kills the intracorpuscular stage of the parasite and brings about the cessation of the febrile paroxysms, yet it completely fails to destroy the extracorpuscular cycle, which is responsible both for the frequent relapses of the ague, and, still more important, for the infection of mosquitos, and through them of other persons. The difficulty in completely eradicating a malarial infection is well known. Thus Norman Chevers relates that he suffered from attacks for eighteen years in India after contracting the disease in Chittagong, and for six years more after he returned to England, and that his friend, Sir Ranald Martin, had frequent attacks of ague throughout his long Indian service, and for no less than thirty years more in England, although both of them took quinine freely for the attacks. Prolonged daily doses of quinine for months at a time will often prevent relapses, but even this measure may fail. A drug which will really cure malaria and destroy the infective extracorpuscular stage of the parasite is, therefore, still much to be desired.

The uniform success which I have already reported, in the cure of kala-azar by tartar emetic intravenously, now amounting to over twenty consecutive cases in Europeans, led me to hope that the drug, once it is able to kill the Leishman-Donovan parasites, which are so highly resistant to quinine, might possibly also be inimical to the quinine-resisting stages of the malarial parasites, of which the malignant tertian crescents are the most characteristic. It is well known that once they appear in the blood they remain present for months on end quite uninfluenced by quinine. Thanks to the kindness of my friend Captain N. H. Hume, I.M.S., I have recently had an opportunity of testing the effect of the drug in the following two cases showing numerous crescents in the blood.

CASE I.—*Apyrexial Case showing Numerous Crescents in the Blood treated with Tartar Emetic Intravenously.*

A Russian sailor, aged 20, admitted for general debility, but without fever. Numerous malignant tertian crescents found in the finger blood, one in every few fields of the microscope.

The following tabular statement will best bring out the treatment and its effects:

	Blood Examination.	Treatment.
First day	Very numerous crescents	——
Second day ...	" " "	——
Third day	" " "	——
Fourth day ...	" " "	Tartar emetic 4 cg. intravenously.
Fifth day	Very few crescents	Tartar emetic 8 cg. intravenously.
Sixth day	" " "	——
Seventh day ...	No crescents found	——
Eighth day ...	One crescent found	Tartar emetic 8 cg. intravenously.
Ninth day	No crescents found	——
Tenth day	" " "	——
Eleventh day ...	" " "	Tartar emetic 12 cg. intravenously.
Twelfth day ...	" " "	——
Thirteenth day ...	" " "	——
Fourteenth day ...	" " "	——

The patient left hospital two days later much improved in his general health, and having gained 10 lb. in weight. His temperature was normal while in hospital except for a rise to 100.2° on the evening after the injection of 12 cg. of tartar emetic.

Unfortunately it will not be possible to follow this patient up, as he has left Calcutta in his ship. The rapid disappearance of the crescents from his peripheral blood was most encouraging, but I realized that it would not be safe to draw far-reaching conclusions from a single case. Fortunately a second one very soon presented itself.

CASE II.—*Acute Malignant Tertian Infection yielding to Quinine; subsequent Appearance of Numerous Crescents, which disappeared after Intravenous Injections of Tartar Emetic.*

European male, aged 45, admitted for fever of ten days' duration accompanied by rigors. Very numerous ring malignant tertian parasites were found, several in every field of the microscope. The following tabular statement shows the progress and treatment of the case:

	Blood Examination.	Treatment.
First day	Very numerous malignant tertian rings	Quinine gr. 10 t.d.s.
Second day ...		Tartar emetic 8 cg. intravenously. Quinine omitted.
Third day	No malarial parasites	—
Fourth day ...	" " "	—
Fifth day	" " "	—
Sixth day	A few crescents found	—
Seventh day ...	Very numerous crescents	—
Eighth day ...	" " "	—
Ninth day	Crescents fewer	Tartar emetic 8 cg. intravenously. Temperature rose to 104.8 F.
Tenth day	Very few crescents	—
Eleventh day ...	No crescents found	—
Twelfth day ...	One crescent found	—
Thirteenth day ...	No crescents found	—
Fourteenth day	" " "	—
Fifteenth day ...	" " "	—
Sixteenth day ...	" " "	—
Seventeenth day...	" " "	—

The rise of temperature to 104.8° on the evening after the injection of 8 cg. of tartar emetic, followed by a very great reduction of the crescents in the peripheral blood, is very significant, in view of the fact that similar rises occur in kala-azar after the injections only as long as parasites are present, for such reactions are best explained as due to the liberation of toxins from the parasites destroyed by the drug. This view is supported by the fact that no ring intracorpuscular forms of the malignant tertian parasites were found during the time the crescents were present which could account for the febrile reaction.

Here we have a second case in which recently developed crescents rapidly disappeared from the peripheral blood following the intravenous injection of a single 8 cg. dose of tartar emetic. Two such consecutive cases are very unlikely to be an accidental phenomenon. The dose used in the last case is less than half what has been safely given repeatedly in kala azar cases.

THE INFLUENCE OF TARTAR EMETIC ON BENIGN TERTIAN PARASITES.

The following experiences of the use of tartar emetic in benign tertian malaria are also of interest. Early in September last an Indian boy was admitted to my kala-azar ward. I found very numerous benign tertian malarial parasites in his blood. Although I recognized the presence of a rather serious infection I decided to try tartar emetic, and gave 4 cg. intravenously in a 2 per cent. solution, the strength used in all the cases mentioned in this paper. His temperature had varied during the previous three days from 99° in the morning to from 101° to 102° F. in the evening, but on the evening of the day on which the tartar emetic was given it rose to 104°, showing a strong reaction. On the following day very few benign tertian parasites could be found. Two days after the first injection the same dose was repeated. On that morning only one parasite was found, and none on the next day or on several other occasions during the next three weeks. As low fever persisted when I saw the patient again, after an interval of three weeks, I did a spleen puncture and found Leishman-Donovan bodies, showing the case to be a mixed infection—a rare condition in Calcutta. As the boy objected to further intravenous injections he was given antimony ointment inunctions. He gained weight steadily, and has had no rise of temperature to above 100° F. during the last month. However, on making a recent examination of his blood I found one ring and one extracorpuscular benign tertian parasite, thus showing that the two comparatively small doses of tartar emetic had failed to eradicate his malaria completely, and suggesting caution in expecting too much from such a short course of the treatment. A 4 cg. dose was now given, and the parasite had disappeared again by the next day. He has had no quinine during the two months he has been in hospital.

Captain Hume has kindly tried tartar emetic injections in two other cases of benign tertian malaria. In one man it required three doses of 4, 8, and 10 cg. to stop the paroxysms of fever and to cause the malarial parasites to disappear from the peripheral blood, so that in this case the drug appeared to be less efficient than quinine against the intracorpuscular stage of the benign tertian parasite. In the other case one 4 cg. dose was followed by the cessation of one paroxysm, converting the infection from a double to a single one. Quinine was then given and the fever ceased.

In the first of the above cases the effect of the tartar emetic on the malarial parasites was very striking, but in the second and third it appeared to be less efficient than quinine against the intracorpuscular stages of the parasite, while it is certainly far less convenient, owing to the administration of quinine by the mouth being much simpler than giving an intravenous injection.

COMMENTARY.

Much further experience will be required to settle these points, but the indications to be derived from these few cases appear to be that quinine should be used to check the malarial paroxysms, while tartar emetic should subsequently be given intravenously, in the hope that it may prove of value in destroying the extracorpuscular stages of the malarial parasites, and so prevent relapses, and greatly lessen the infectiveness of the patient to malarial-bearing mosquitos, by killing the crescents of the malignant tertian variety and the corresponding resisting forms of the other types of malaria.

In view, however, of the many disappointments which have been met with in attempts completely to eradicate the protozoal parasites of malaria, sleeping sickness, and amoebic dysentery, it is well not to be too sanguine regarding the success, possibly only temporary, of tartar emetic given intravenously in causing the malignant tertian crescents to disappear from the peripheral blood in my two cases. The observations are, however, of sufficient interest and importance to make it advisable to place them on record without delay, in order to allow others to investigate the subject, as many prolonged observations will be necessary before any reliable conclusions can be arrived at. If this drug should prove successful in really curing malaria, or in removing the infectiveness of the patients treated with it, a new and most important addition will accrue to our armamentarium in the battle against the most widespread scourge of tropical and subtropical countries, the value of which it would be difficult to overestimate.

Since writing the above I have been fortunate enough to meet with the following two additional cases:

CASE III.—*Malignant Tertian Crescents of an East African Infection treated with Tartar Emetic Intravenously.*

A European male, who had just returned from British East Africa, where he had suffered from several attacks of malaria, was sent by his doctor to consult me. I found crescents easily in his blood on two occasions with one day's interval. Eight cg. of tartar emetic were now injected intravenously, and two days later no crescents could be found by a careful search of two blood films. Two further doses of 10 cg. each were given on alternate days, and on each occasion the blood was examined for parasites with a negative result, and he stated that he felt much better after the treatment.

No reactionary rise of temperature occurred in this case, the crescents having been fewer than in CASE II. As blackwater fever frequently follows repeated attacks of African malaria, if the destruction of the crescents in the

peripheral blood should prove a preventive of relapses, blackwater fever itself may possibly be greatly diminished by the tartar emetic treatment.

Case IV.—*Benign Tertian Gametes disappearing from the Blood after the Intravenous Injection of Tartar Emetic.*

A European male from Assam, admitted for malarial fever for which he had taken quinine; he had had no fever after admission. Only the quinine-resisting extracorpuscular fully developed parasites were present in the peripheral blood, and were easily found on three consecutive days. On the fourth morning 8 cg. of tartar emetic were given intravenously. A blood slide taken that evening showed after a long search one benign tertian gamete with distinct chromatin body and pigment, but with an incomplete outline as if it was breaking up. A careful search on the following four days showed no malarial parasites. During this time he received two further doses of 10 and 12 cg. respectively of tartar emetic intravenously, after the last of which he felt some nausea. He has now left hospital, but I hope to be able to follow him up.

This case indicates that the drug has a destructive effect on the gametes of the benign tertian as well as the malignant tertian variety of malaria, and makes it probable that it will act similarly on the quartan form, which is rare in Calcutta.

THE X-RAY DIAGNOSIS OF GAS IN THE TISSUES.

BY

J. D. MORGAN, B.A.Cantab., M.D., C.M.McGill, C.A.M.C.,

Radiographer with Canadian General Hospital, B.E.F., France,

AND

G. VILVANDRÉ, M.R.C.S., L.R.C.P., R.A.M.C.,

Radiographer with British General Hospital, B.E.F., France.

(*With Special Plate.*)

The war has added a new and important rôle to those already performed by the *x* rays, namely, the early diagnosis of the presence of gas in a wound.

The subject has previously been mentioned in at least two short articles—by Woodburn Morrison[1] and by Ledoux-Lebard.[2] But as time goes on, and experience with this serious condition increases, we have become more and more impressed with the importance of the *x* ray findings, both in regard to the much earlier diagnosis of the presence of gas which can be made by this method than by any other, and also by the definite information given as to the extent of tissue involved.

We here deal with a number of interesting examples of this condition, in several of which the early warning given the surgeons, through the *x*-ray findings, probably saved the limbs, if not the lives, of the wounded men. At the same time it must be noted that the interpretation of the skiagrams of such cases is not without its own particular pitfalls.

Where the typical clinical symptoms—the tender, swollen tissues, which on palpation give the characteristic crepitation; the foul odour about the wound; the rapid, thready, pulse, and greyish drawn appearance of the face of the toxic patient—are well marked, the surgeon, naturally, does not need to rely on the *x* rays for diagnosis; but even in such cases, where possibly amputation of the limb is the only treatment giving any hope of saving the patient's life, most valuable information may be supplied by the *x* rays as to the extent of the tissues involved.

On the other hand, a number of cases have been observed in which the presence of gas in the wound was entirely unsuspected till revealed by the rays during the routine examination for pieces of metal or for fractures. Figure 1 is an instance; the gas appears as white spaces in front of the humerus. All cases in which gas was reported by the radiographer were immediately operated on, and very free drainage established. The presence of gas was confirmed in every case. In several of them (Case I) the gas continued to spread for a time, even after free drainage was established; in others the patients made an uninterrupted recovery.

We cannot but feel that the results, particularly in the former cases, might have been far different than they proved to be had it not been for the timely warning supplied by the skiagrams. The quantity of gas found in the tissues is no criterion of the virulence of the infection. We have several times seen patients where, according to the radiogram, much gas was present, do quite well on opening up the tissues, whereas in other cases where but little gas was found, the infection spread with such rapidity as seriously to endanger the patient's life. A consideration of the clinical findings, in conjunction with those afforded by the *x* rays, will, in most cases, give a clue to the virulence of the infecting organism. A high temperature and other indications of toxaemia, and the presence of gas (even in minute quantities), is always indicative of virulent infection; whereas, when no clinical signs of intoxication are present, even comparatively large quantities of gas in the tissues may be considered to be due to organisms of but low virility.

It is not our intention to deal here with the bacteriological side of the question. In all our cases cultures were made from matter taken from the wounds. This was done, with one exception, by means of swabs, and in all these cases the results were negative. In this one case (Case I), however, pieces of the infected muscle were sent to the laboratory; the result was a pure culture of *B. aërogenes capsulatus*. This was obtained in anaërobic agar medium. No aërobic culture was made. It is intended that, at this hospital, in future all cultures of such cases will be made according to this method.

When gas is present it usually appears in the skiagram as bubbles, varying in size, and arranged in strings (Fig. 2), or scattered broadcast through the tissues (Fig. 3). In one case (Fig. 4) it lay as a clear layer under the skin and between the muscle sheaths. In another it lay in thin layers widely scattered through the tissues about the wound. Occasionally it appears as large, irregular spaces in the wounded area. A case in which the presence of gas was first diagnosed by the *x* rays before any clinical evidence was visible except some swelling of the leg which might have been due to an ordinary septic wound is shown as Fig. 5. These are cases in which the difficulty of differentiating between the shadows caused by the gas in the tissues, and those caused by the wounds themselves, are particularly marked. Only experience, and a general consideration of the case, can help in arriving at a correct diagnosis.

Another pitfall to be avoided is the differentiation between surgical emphysema and gas in the tissues of the thoracic wall. Fortunately it is but rarely that both conditions are present at the same time. This did occur, however, in one of our cases, and Fig. 6 shows surgical emphysema of the chest wall in a case of haemothorax.

Then, again, there are the shadows of normal structures which must be kept in mind when making a diagnosis; as, for example, in Fig. 7, where the shadows caused by the normal popliteal space are shown; and, in Fig. 8, showing the presence of a bursa under the quadriceps extensor tendon.

In conclusion, let us again indicate the two points which appear to us to be of the utmost importance regarding the diagnosis of gas in the tissues by the *x* rays:

1. It supplies a means of making an earlier and more definite diagnosis than can be made by any other method.

2. In cases where an amputation is under consideration, the rays will give information as to the extent of the tissues involved, and, by so doing, may obviate a further operation later on, which might otherwise be necessary owing to the fact that the first operation did not include all the infected tissue.

Case I.

Pte. F. H. Wounded in the right shoulder. Temperature 102°, pulse 108. *X*-ray report: Fracture of scapula, and some damage to neck of humerus. No metal present. A small quantity of gas present in the posterior axillary fold.

Treatment.—Free drainage, and excision of all gangrenous tissue. In spite of this treatment, the gas (which, previous to the report from the *x*-ray department, was entirely unsuspected) continued to spread rapidly. The spread was finally stopped by the use of hypochlorite dressings and the intravenous injection of eusol. He was discharged to England some three weeks later.

Case II.

Private G. C. Perforating wound 3 in. above the knee. Exit wound on inner side of the popliteal space. *X*-ray report: No metal present. Small gas pockets above the knee-joint. There is a large quantity of gas between the muscle sheaths and under the skin from the knee to the ankle (Fig. 4). Temperature 100°, pulse 84.

Treatment.—Free drainage. Gas escaped. Discharged to England a week later. Temperature 98°, pulse 80.

J. D. MORGAN AND G. VILVANDRÉ: X-RAY DIAGNOSIS OF GAS IN THE TISSUES.

(Descriptions in Text.)

FIG. 1.

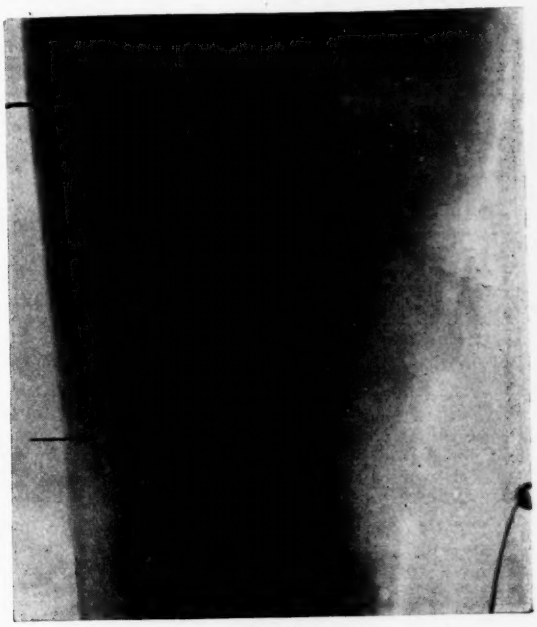

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

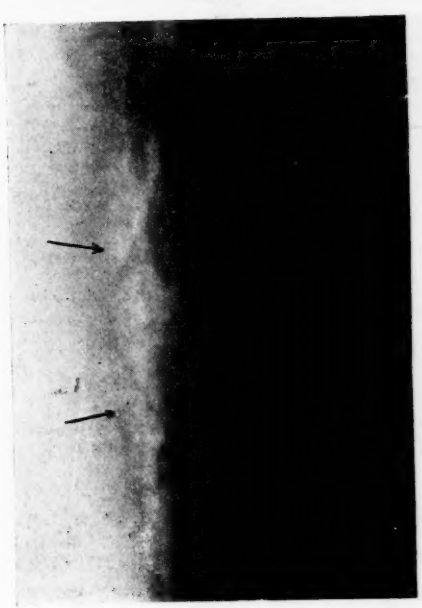

FIG. 6.

J. D. MORGAN AND G. VILVANDRÉ: X-RAY DIAGNOSIS OF GAS IN THE TISSUES.

FIG. 7.

FIG. 8.

HAROLD BLACK: DETECTION OF GAS IN THE TISSUES BY X RAYS.

FIG. 1.—The round white area overlapping the neck of the humerus is due to a collection of gas.

FIG. 2.—At the upper left corner of the skiagram the point of a bullet is seen, surrounded by an area of lightness due to gas.

CASE III.

Pte. A. S. There was an irregular incised wound on the inner side of the left calf. *X*-ray report: Two pieces of metal and gas present (Fig. 3).

Treatment.—Metal removed and free drainage established. Temperature 104°, pulse 140. Peroxide bath given. A few days later he was discharged to England.

CASE IV.

Pte. F. N. was wounded in the upper part of the left calf. There was considerable swelling. The presence of gas was not suspected. Temperature 102°, pulse 120. *X*-ray report: Several pieces of metal, and gas, present.

Treatment.—The metal was removed, and the wound freely opened. The temperature was then 103°. On the following day the temperature was 104°, pulse 144. As the patient's condition continued to get worse, amputation was performed. On the following day temperature 102°, pulse 110. A week later the patient was discharged to England; temperature 100°.

CASE V.

Here, too, the presence of gas was diagnosed by the *x* rays (Fig. 5) before any clinical evidence was visible, except some swelling of the leg, which might have been due to an ordinary septic wound.

CASE VI.

Pte. A. M. was wounded in the knee, near the head of the fibula. *X*-ray report: No metal present. The skiagram suggested the presence of gas in the anterior portion of the knee-joint, above the level of the patella. Temperature 102°, pulse 116. Next day temperature 101°, pulse 112. He was discharged to England.

CASE VII.

Pte. A. G. was wounded about the middle of the patella. *X*-ray report: Some damage to the lower pole of the patella. A piece of metal lies just below and internal to this bone. No gas was noticed at the subsequent operation. The recovery was uninterrupted, the temperature being normal after the fifth day.

Again, compare with these last two the following:

CASE VIII.

In this case no wound was present. The shadow of the air space (Fig. 8) was probably caused by a bursa under the tendon of the quadriceps extensor.

Fig. 6 shows surgical emphysema of the chest wall in a case of haemothorax.

Fig. 7 is a skiagram of a normal knee, showing the shadow caused by the popliteal space.

CASE IX.

In this case there were no clinical signs which suggested the presence of gas. This was, however, diagnosed by the *x* rays. (Fig. 1.) The infection did not spread after free drainage had been established.

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[1] *Archives of Radiology and Electrotherapy*, December, 1915.
[2] *Journal de Radiologie et d'Electrologie*, July–August, 1916.

THE DETECTION OF GAS IN THE TISSUES BY X RAYS.

By HAROLD BLACK, M.D., M.R.C.P.,

RADIOGRAPHER TO THE SECOND BIRMINGHAM WAR HOSPITAL, HOLLYMOOR.

(With Special Plate.)

To Colonel Gilbert Barling, Consultant Surgeon to the Southern Command, I am indebted for the suggestion to record the experiences we have had in the Birmingham Base Hospital at Hollymoor of the *x* rays detection of gas in the tissues.

It has been shown that gas gangrene may assume various forms and be due to different organisms.

At Hollymoor few cases of the acute or rapidly spreading form have occurred, and in these the diagnosis has been only too obvious without the help of the *x*-ray department. The less malignant form has been seen more commonly, and the object of this note is to emphasize the value of *x* rays in diagnosis.

In the last six months there have been nine cases radiographed by my assistant, Sergeant Brailsford, in which he has demonstrated the presence of gas. When these cases were sent for *x*-ray examination there was in most instances no suspicion that any gas was present, and in no case was it clinically certain. The demonstration of the presence of gas was a great help to the surgeon in the treatment of the cases, and it is obvious that, by dealing with the condition in its early stages, much relief was given to the wounded patients, and a large amount of destruction of the tissues must have been obviated.

The appearances of gas in the tissues are similar to those we are accustomed to see on pictures of normal body cavities that contain air—namely, a black area on the negative or a white area on the positive, which contrasts with the surrounding greyness.

The size of the area of blackness or whiteness varies naturally with the amount of gas present. In some of the cases it was a single spot less in size than a threepenny piece (1.6 cm. in diameter); in others it was as large as a florin (2.8 cm. in diameter). In most of the cases there were several spots present, and these were apparently isolated from one another. When the areas were small their outline was more or less oval and the margins sharp.

These gas bubbles are very clearly shown on the negatives, but, being small, they are very difficult to reproduce. I have chosen two of the cases, in which the gas collections were large, for illustration.

An interesting point in the cases is that in every case in which gas was shown on the negative the culture made from the pus or foreign body showed the *Bacillus perfringens*. In some of the cases no gas could be detected at the operation when the tissues were opened up, but the constant finding of this bacillus on culture confirmed the *x*-ray diagnosis.

Another point of interest is the length of time or latent period between the date of the injury and the detection of the gas. In one case this was almost five weeks.

The patients presented no unusual clinical features. All had a moderate pyrexia, all complained of pain. Tenderness was present on pressure over the affected areas, but no crepitation could be felt.

After operation a speedy recovery was the rule.

I append a summary of the cases made for me by Sergeant Brailsford, to whom I am much indebted. I also wish to express my thanks to the surgeons in charge of the cases for their permission to publish them.

CASE I.

Pte. L. Wounded in left thigh on April 4th; admitted April 17th. Radiographed on April 18th. Bullet shown at depth of 3½ in. with gas. The next day another radiograph showed that the gas had increased, the shadow being about the size of a florin, whereas the previous day it was about the size of a sixpence.

On April 20th Colonel Gilbert Barling removed the bullet, but no gas was detected at operation. Culture from the bullet showed *Bacillus perfringens*.

CASE II.

Pte. C. Wounded July 1st; admitted July 6th. A radiograph on July 6th showed (Fig. 1) a large piece of metal in the axilla at a depth of 2½ in., with a large area of gas overlapping the shadow of the neck of the humerus.

The metal was removed by Mr. Hewetson on July 7th; gas obvious at operation. Culture from the metal revealed *Bacillus perfringens*.

CASE III.

Sergeant D. Wounded in shoulder July 25th; admitted August 7th. Radiograph on same day showed fracture of fifth and sixth ribs, with bullet at depth of 1½ in.

Another radiograph made on August 19th showed small gas bubbles. Bullet removed by Colonel Barling; no gas detected at operation. Culture showed *Bacillus perfringens*.

CASE IV.

Pte. N. Wounded in thigh on July 31st; admitted August 6th. Radiograph on August 7th showed bullet and gas. The bullet was removed by Mr. Savage on August 8th; gas was noticed at the operation. Culture grew *Bacillus perfringens*.

CASE V.

Pte. L. Wounded in thigh August 26th. Radiograph on September 29th showed (Fig. 2) fracture of femur, many metallic fragments, and a gas bubble around the shadow of a bullet (upper left corner of print).

Operated on by Major Tweedy September 30th. Culture showed *Bacillus perfringens*.

CASE VI.

Cpl. S. Wounded August 31st; wound opened up in France. Admitted September 6th. Continued slight secondary haemorrhage. Pain in wound severe. Radiograph on September 13th showed shrapnel bullet 2½ in. deep, with gas in the muscles.

Opened by Mr. Lewis Graham the same day. Bullet removed, but no gas observed. Culture from bullet revealed *Bacillus perfringens*.

CASE VII.

Rifleman J. Wounded September 3rd; admitted September 21st. Radiograph on September 25th showed comminution of scapula and of the head of the humerus, many metallic fragments, and several gas bubbles.

On September 26th Major Tweedy opened up the area; no gas was detected. Culture showed *Bacillus perfringens*.

CASE VIII.

Pte. G. Wounded September 10th; admitted September 20th. Three wounds present over lower part of sternum and one large laceration from which pus poured. Radiograph on September 24th showed three foreign bodies and gas.

Metal removed by Mr. Hewetson. Culture from pus showed *Bacillus perfringens*.

CASE IX.

Lombardier R. Wounded in left loin on September 26th; admitted October 2nd. Radiograph on October 4th showed large piece of metal at a depth from the back of 3 in., with a halo of gas.

Removal by Mr. Furneaux Jordan on October 5th. Gas obvious at operation. Culture from bullet grew *Bacillus perfringens*.

[This paper was received by the Editor on October 27th.]

NOTE ON THE KEEPING QUALITIES OF THERAPEUTIC SERUMS.

BY

A. T. MACCONKEY, M.B., D.P.H.,

BACTERIOLOGIST IN CHARGE OF SERUM LABORATORIES, LISTER INSTITUTE OF PREVENTIVE MEDICINE.

AT the present time, when it is necessary to keep large stocks of therapeutic serums on hand to meet any sudden call, it becomes of importance to know the rate at which serums deteriorate.

The serum which has been the most carefully studied in this respect is antidiphtherial serum.

Diphtheria Antitoxin.

Anderson (1910) examined the question under experimental conditions and found that the average yearly loss in unitage was about 20 per cent. when the serum was kept at room temperature (70° F.–95° F.); at 15° C. the loss was about 10 per cent., and at 5° C. about 6 per cent. per annum. Dry diphtheria antitoxin kept in the dark at 5° C. remains stable for at least five and a half years. Old serums are just as good as fresh serums when the relative unitage is taken into account.

The writer (1913) also carried out some experiments in this direction. His results confirm those of Anderson inasmuch as he found that the loss during one year amounted to 7 per cent. when the serum was kept in an ice chest, and to 14 per cent. when the store temperature varied between 6° C. in winter and 16° C. in summer. At 36° C. the loss was 37 per cent. in six months and 51 per cent. in twelve months. One serum kept in bulk (100 c.cm.), instead of in the ordinary ampoules, at 36° C. lost 62 per cent. of its antitoxin in six months.

We see from these observations what we can count upon when the serum is kept under proper conditions, namely, in the dark and in the cold.

But serums on the market are not always stored so carefully, judging from tests carried out on samples of serum which have been in commerce.

In the *Journal of the Royal Army Medical Corps*, vol. iii, 1904, p. 601, are given results of an examination of some samples of diphtheria antitoxin. The interval between the tests was about fourteen months, and during that time some of the samples had made two voyages to India and back. The maximum loss in unitage was 20 per cent., and the average loss some 7 to 8 per cent.

Miller (1905), who examined eighty-two samples of returned serum, mentions that "A half-dozen packages of serum had evidently been exposed to considerable heat, as the serum in them was firmly coagulated." He concluded that—

1. The high potency serums change more rapidly than the weaker, but in neither case is the loss of potency as rapid as is usually supposed.
2. The ordinary packages of serum retain their full therapeutic value for the time limit, which is often stamped on the labels.
3. The demand frequently made for fresh antitoxin is not justified.

Kinyoun and Hitchens (1907) tested 100 serums, samples of "returned antitoxin" which had been subject to the usual commercial conditions. The time between the first and final tests varied from thirteen to twenty-seven months. The loss in unitage varied from 0 to 48 per cent.; the latter occurred in eighteen months. Many of the serums were out for more than eighteen months without losing so much.

In the following table are given the results of an examination of a number of samples of serum which had been in commerce, and which were all returned at the same time. It must be noted that the tests were not carried closer than 50 units. Thus a 450 unit serum might be 475 units or more, a 300 unit serum might be 340, and so on. Serum No. 4, for instance, may originally have been, say, 640, and the loss really 6 to 7 per cent., but as the serum was, for market purposes, originally reckoned as 600 units its loss in commerce was *nil*. These batches of serum were made up of bleedings which had been kept for varying periods before being mixed up to form a batch. Serum No. 7 was composed of serums which had been in store for from two to sixteen months before being mixed, and therefore the "age of serum" is put as two to sixteen months:

TABLE I.—*Showing the Loss of Antitoxin which occurred in Samples of Diphtheria Antitoxin which had been in Commerce for Various Periods.*

No. of Batch.	Age of Serum.*	Period between First and Final Tests.	Unitage when Sent Out.	Unitage when Returned.	Loss in Unitage.
	Months.	Months.			Per Cent.
1	19–24	72	500	400	20
2	6–23	55	450	300	33
3	11	46	900	800	11
4	4–14	51	600	600	*Nil.*
5	9–13	47	550	300	45
6	3–54	49	450	300	33
7	2–16	44	550	450	18
8	3–16	41	450	350	22
9	5–13	40	450	350	22
10	7	39	1,100	600	45
11	5–9	39	450	350	22
12	6–9	36	600	400	33
13	5–6	36	450	300	33
14	4–7	33	450	350	22
15	2–9	32	450	350	22
16	10–16	25	450	400	11
17	13–16	24	450	400	11
18	6–12	29	600	450	25
19	4–7	29	550	350	36
20	7–13	28	400	300	25
21	10–14	27	450	400	11
22	13–20	18	450	350	22
23	11–16	23	500	450	10
24	7–16	22	500	450	10
25	11–22	22	600	450	25
26	12–16	19	450	300	33
27	7–16	19	400	350	12
28	10	21	500	350	30
29	13–24	17	550	400	27
30	11–14	17	500	400	20
31	14–22	9	450	400	11

* That is, period between the date of collection and the date of first testing and sending out into commerce.

The average period during which these serums were on the market is about two and a half years, and the average loss in unitage during that period is about 23 per cent., or about 10 per cent. per annum. Nothing is known about the conditions under which these serums were stored while in commerce, but it is obvious that the rates of deterioration varied greatly. If we compare the losses in Nos. 19, 20, and 21, and also those in 26 and 27, we must conclude that unless we know how serum has been stored the putting on the label of a time expiry limit tells us nothing, and may lead to a false sense of security.

Tetanus Antitoxin.

Kept under similar conditions this antitoxin loses its strength at about the same rate as diphtheria antitoxin.

Antiplague Serum.

Taking the antitoxin content of this serum as a criterion, it has been found that antiplague serum when stored under proper conditions changes little in the course of two years. (Cf. MacConkey, 1912.)

Antidysentery Serum.

There is no generally accepted method of standardizing this serum. In these laboratories we have for several years used as test "toxin" the dry, powdered bodies of bacilli of the Shiga type. The strength of this powder has remained fairly constant for three years—$\frac{1}{20}$ mg. suspended in distilled water or salt solution and injected intravenously usually proving fatal to a rabbit of 1,000 to 1,500 grams in four to five days. The test dose, 1–5 mg., of this "toxin" is mixed with the serum and at once injected intravenously. Tested in this way, antidysentery serum appears to retain its "toxin" neutralizing power with little change for at least one and a half years. Some serum which was sent out to India, kept there in an ice chest for one year and then returned, showed, when retested, no deterioration.

Antiscorpion Serum.

This serum preserves its property of neutralizing scorpion venom with little change for two years.

Antimeningococcic Serum: Antistreptococcic Serum.

We cannot say how long these serums retain their value, as there is no method accepted as reliable for standardization purposes. A paper on the standardization of antimeningococcic serum has appeared in the *Journal of Immunology*, August, 1916, but this journal has not been available as yet.

General Remarks.

It is specially to be noted with regard to diphtheria antitoxin and tetanus antitoxin that the loss which occurs on keeping is in the number of units only. The *quality* of the antitoxin remains the same, but the *quantity* is less. This decrease can easily be remedied by giving larger doses.

It would add greatly to our knowledge if, when either antiplague serum or antidysentery serum is used, a note were made of the distinguishing mark on the bottle. If this were always done and mentioned in reports we should in time possibly be able to establish a relationship between the quality of the serum and the therapeutic effect.

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ON THE CHEMICAL FACTORS INVOLVED IN THE GROWTH OF THE MENINGOCOCCUS.

BY

DOROTHY JORDAN LLOYD, D.Sc.

(Report to the Medical Research Committee, from the Biochemical Laboratory, Cambridge.)

THE writer, in a recent number of the BRITISH MEDICAL JOURNAL,[1] stated that "the meningococcus needs for its metabolism (*a*) some digested protein, and (*b*) a comparatively high concentration of the vitamines or accessory growth hormones." The evidence in support of this generalization is given in full in the current number of the *Journal of Pathology and Bacteriology*, vol. xxi, p. 113, and is summarized below.

It is found that in order to obtain primary growth of the meningococcus, either from the throat or from spinal fluid, the medium used must contain some such substance as blood, serum, milk, beaten-up eggs, or certain vegetable products, as, for example, extract of peaflour (Gordon and Hine), or starch (Vedder). The influence of these additional substances in stimulating the growth of the more difficult pathogenic organisms on the ordinary nutrient media has usually been attributed to the influence of the additional protein, but that this hypothesis is untenable is shown by an examination of the properties of the stimulating factor present in blood. This substance is very freely soluble in 80 per cent. alcohol, it is moderately stable to heat, withstanding a temperature of 100° C. for over an hour; it possesses, moreover, the property of being absorbed with very great rapidity by filter paper. These properties suggest that the stimulating factor belongs to the same class of substances which Hopkins has shown to be a *sine qua non* in mammalian diet—namely, the accessory growth hormones, or, as they are more generally called, the vitamines. Gordon and Hine,[2] in their latest paper on the culture of the meningococcus, have also come to the belief that the stimulating influence of this peaflour extract is due to vitamine action, and the properties of the stimulating factor described by Shearer[3] in the nasal mucus suggest that it also falls into this class.

The meningococcus, then, needs vitamines for its primary growth *in vitro*, but during the early stages of subculture this need becomes greatly diminished. After a certain number of subcultures, varying from one to ten according to the strain, the meningococcus will grow vigorously on a vitamine-free medium, provided that there is present an abundant supply of free amino-acids. The only medium, as far as the writer's knowledge goes, that fulfils these two conditions, that is, vitamine-free and amino-acid rich, is the tryptic digest of casein prepared by the method of Cole and Onslow.[4] This medium gives very heavy growth of laboratory strains, even when sown from dilute emulsions of the coccus in Ringer's solution. Douglas's tryptic heart agar[5] also gives good growth with laboratory strains, though not so readily as Cole and Onslow's medium. It probably always contains some vitamine. The ordinary heart-broth peptone agar does not give subculture even of laboratory strains of the meningococcus unless a solid mass of the organisms be smeared thickly over the surface of the medium. Under these conditions growth is obtained, but undoubtedly the cause of growth is that a large number of the organisms die and release a vitamine supply which stimulates the growth of the survivors. The relation between the supply of free amino-acids and vitamines in media used for subculture may be summed up as follows: In the presence of an abundant supply of free amino-acids the meningococcus will grow without the addition of vitamines; in a medium containing a poor supply of free amino-acids, vitamine must be added in order to obtain growth. This relationship suggests that the amino-acids are the essential food substances, and that the function of vitamines in accelerating growth is exerted through their effect upon protein equilibrium in the cell.

Another essential condition for the laboratory culture of the meningococcus is that the organism must be kept permanently in a moist atmosphere. Given moisture, cultures of the meningococcus on agar slopes will readily survive for three weeks or more.

The medium described in the previous paper of the writer was made by adding defibrinated blood to tryptic heart agar, steaming to coagulate the blood proteins, and finally clearing by means of the centrifuge. The transparent blood medium can also be made by taking Cole and Onslow's tryptic casein agar as a basal medium, and the clearing can be accomplished by straining through a layer of glass wool (not filter paper).

The transparent medium gives a good growth in both primary and secondary culture with many of the more delicate pathogenic organisms. Pure cultures of the following organisms have been readily obtained on it from infected swabs: The meningococcus, *Micrococcus catarrhalis*, the pneumococcus, *Streptococcus pyogenes*, *B. influenzae*, *B. xerosis*, *B. diphtheriae*. It seems justifiable to extend the theory of the vitamine influence to all such "parasitic" micro-organisms. It is easy to imagine that the development of the parasitic habit may be accompanied by an increasing tendency to depend on the vitamine supply from the tissues of the host. The need of a generous vitamine supply in the primary culture of a micro-organism may be taken as an indication of the parasitic habit. The disappearance of this need in subculture may, on the other hand, indicate a reversion to a non-parasitic type of metabolism.

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[1] BRITISH MEDICAL JOURNAL, July 29th, 1916, p. 143. [2] Ibid., November 18th, 1916, p. 678. [3] *Lancet*, November 20th, 1915. [4] Ibid., July 1st, 1916. [5] Ibid., October 10th, 1914.

NOTE ON THE MORPHINE-HYOSCINE METHOD OF PAINLESS CHILDBIRTH.

BY

A. F. MARTIN, M.D.VICT.,

TEMPORARY LIEUTENANT R.A.M.C.; MEDICAL OFFICER TO G.H.Q., SALONICA ARMY.

THE importance of the article in the BRITISH MEDICAL JOURNAL for October 14th last by Drs. Haultain and Swift on this subject cannot be overestimated. I have thought that a few further observations from my own experience in fifteen cases, all primiparae, would perhaps be of help. These results were embodied in a paper read before the Bradford Medico-Chirurgical Society in March, 1916.

To acquire the technique of Kronig's method was not easy. The first difficulty was to know when to give the first dose. I fancy I have met cases in which the os was the size of a crown, but where, notwithstanding this, the uterine pains were inhibited by the hyoscine, which paralyses the nerve endings in the uterine muscle.

The rule laid down by Drs. Haultain and Swift will be of great help; but my experience leads me to say that the first dose should not be given until the pains have reached that point when the uterine reflex will not be denied. The early, ineffective, "niggling" pains should have given place to longer pains to which the woman is beginning to bear down, and which result in a tense bag of membranes for more than a few seconds, and some stretching of the cervix.

Earlier than this the woman can be relieved by inserting a tampon soaked in a freshly prepared solution of 2 per cent. cocaine through a narrow Ferguson's speculum, as recommended some time ago in the columns of the BRITISH MEDICAL JOURNAL.

One disadvantage of the method is that in the hands of a beginner the drugs certainly make the pains less frequent and weaker, so that labour is longer, and I think forceps more often used when the head is on the perineum—a minor consideration with reasonable care.

My impression is that the dose I used (morphine gr. $\frac{1}{4}$, hyoscine gr. $\frac{1}{100}$) was a little too large in some susceptible women, where the uterine reflex was weak or not fully established. The known reaction of the patient to drugs should be considered, and each case thought out as a separate entity. Hyoscine gr. $\frac{1}{150}$ is more to be recommended, and I have tried morphine gr. $\frac{1}{6}$ in some of my best cases. Pituitrin 1 c.cm. is of no use to reinforce weak pains. I have tried it repeatedly.

Drs. Haultain and Swift favour an early second dose. In my last case I obtained amnesia with morphine gr. $\frac{1}{6}$, hyoscine gr. $\frac{1}{100}$, the hyoscine being repeated in two and a quarter hours in a dose of gr. $\frac{1}{300}$, which has been my usual dose for repetition. I thought this case was going to prove a failure, for the degree of mental dissociation was slighter than I had usually obtained, the patient talking quite aptly during the pains. On questioning her afterwards, she remembered nothing after the first injection had been given ten minutes.

In my experience, it is safer to decide when to give a reinforcing dose by the patient's condition rather than by the clock. I could not find much satisfaction in the memory test. It perhaps was made too obvious. I shall try it again by using something less dramatic than a pair of scissors and assuming an offhand manner. I endorse Drs. Haultain and Swift's opinion that the amnesic state can be efficiently estimated on general observation of the patient.

Another disadvantage of too deep anaesthesia is that sometimes the patient cannot concentrate sufficiently to bear down and help the pains by her own efforts as well as normally. This is present in any case in some susceptible women, a reinforcing dose being only given every two or three hours.

The state to be aimed at is one in which the patient does what she is told promptly and effectively during the pain, of which she complains bitterly at the time. After the pain is over she talks irrelevantly for a few seconds, and then settles down to a light noiseless sleep. Stertorous breathing soon after a reinforcing dose is to me a sign that it has been given too soon or has been too large. It is especially to be avoided at the beginning and end of the treatment.

The method is suitable for general practice provided the practitioner can give the case undivided attention from the beginning to the end, and has a nurse who knows when to call him, and can give one of the early reinforcing doses herself. Nurses usually send too late. This happened in my only case which failed. When I first saw the patient dilatation was complete. The pains were slowed down by a full dose, and what had promised to be a fairly quick labour developed into a very tedious one, and the second dose did not produce amnesia.

The accoucheur need have no dread of chloroform in these cases; less than usual is required for a forceps operation; it is taken well, and has not been followed by increasing haemorrhage or lack of vitality in the child.

No babies have been lost in my fifteen cases, but one needed a lot of stimulation to induce breathing, although the heart was quite sound and slow all the time. In this case the last part of labour was quicker than expected, and I had given hyoscine gr. $\frac{1}{300}$, the fourth dose, only half an hour before the baby was born. A dose should never be given within two hours of the birth of the child, estimated on probabilities.

Kronig makes a point of using a fresh solution of hyoscine, but I have found the tablets of Messrs. Parke, Davis, and Burroughs and Wellcome very satisfactory.

I usually give a little chloroform when the head is being born.

What danger there is lies in overdosage of morphine and hyoscine. The advantages, to my mind, very much outweigh the disadvantages. Nothing has given me more pleasure than to be able to relieve some of the worst pain in one's experience.

PRELIMINARY NOTE ON A MONOMORPHIC TRYPANOSOME FOUND IN THE BLOOD OF A NATIVE OF THE GOLD COAST.

BY

J. W. S. MACFIE, D.Sc.,

PATHOLOGIST, GOLD COAST.

HITHERTO all the trypanosomes described as occurring naturally in the human blood have been polymorphic. Lanfranchi, it is true, had the misfortune to infect himself with a trypanosome that appears to have been either *T. brucei* (Zululand) or *T. evansi*, but as this accident occurred in his laboratory the infection was not a natural one. Recently I have been privileged to examine two blood slides from a native of the Gold Coast suffering from trypanosomiasis, and as the parasite found was of a monomorphic type the infection is of considerable interest.

The patient was a native man, a member of the Gold Coast Constabulary, who was examined by Dr. E. W. Graham at Tamale and found to be suffering from trypanosomiasis. The history of the case suggested that the infection might have taken place about three weeks previously, but apart from slight fever, which Dr. Graham thinks may not have been due to the trypanosomes, the patient had no symptoms of illness. After the first injection of atoxyl the trypanosomes vanished from the blood, and up to the time of writing they have not reappeared. I am indebted to Dr. E. W. Graham not only for sending me the blood films but also for taking a great deal of trouble to trace the patient, who had left Tamale, and for trying to obtain for me the strain in animals, and I take this opportunity of expressing my sincere thanks to him.

Dr. Graham, in the first instance, sent me last September a single blood film, but, in reply to my telegram asking him if he could procure further materials, sent me a second film which he had taken before the parasites disappeared from the blood. In both films a moderately heavy infection with trypanosomes was found, and even at first glance it was evident that the morphology of the parasite was unusual.

The trypanosomes resembled very closely *T. vivax*, a parasite of which Bruce says, "This species of pathogenic trypanosome can at once be recognized among all the others by its shape alone." They were monomorphic—that is, they were all of the same form and nearly of the same size. The body showed the characteristic abrupt

narrowing immediately anterior to the nucleus. The cytoplasm was relatively clear, and showed an alveolar structure. The posterior end was usually blunt, and the large rounded blepharoplast was terminal or nearly so. The undulating membrane was poorly developed, so that the flagellum ran usually along the body in a more or less straight line, and there was always a long free portion to the flagellum. The nucleus was long, oval, and often divided into several pieces.

A hundred trypanosomes taken as they came from each of the films were drawn with the aid of a camera lucida and measured (see Table I). Of these 200 parasites the longest measured 24 μ, the shortest 18 μ, and the average worked out at 20.7 μ. The numbers of trypanosomes of each length were almost exactly the same in the two films. These measurements indicate clearly the monomorphic character of the parasite.

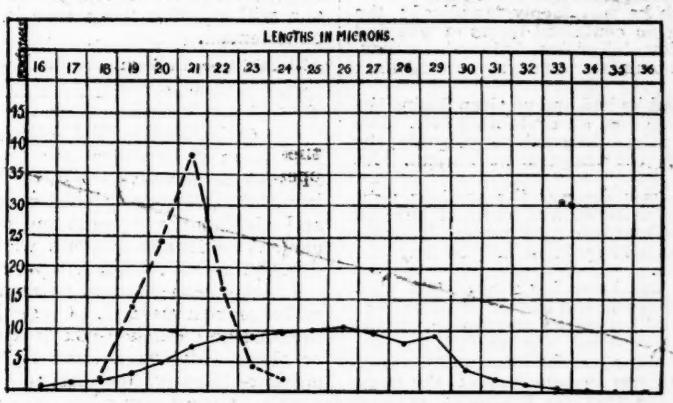

CHART 1.—The distribution according to length of *T. gambiense* (continuous line), and the monomorphic trypanosome (broken line) found in the blood of a native of the Gold Coast.

In order to emphasize the profound difference between this trypanosome and the organism usually found in human trypanosomiasis (*T. gambiense*), I have plotted as curves the measurements of length by percentages in Chart I, and have added as contrast those for *T. gambiense*, as given by Stephens and Fantham.

The morphology of this trypanosome very closely resembles that of *T. vivax*. The small number of measurements that have been made so far suggest, however, that it is a little smaller, the crest of the curve occurring at 21 μ instead of at 23 μ. The trypanosome appears, indeed, to be intermediate between *T. uniforme* and *T. vivax* as regards its morphology, but further examinations will have to be made before any definite conclusion can be arrived at.

T. vivax is an exceedingly common parasite of domestic animals in West Africa, and was found in no less than 76 per cent. of the hump-backed cattle examined by me at Accra. It would therefore be a serious matter if this species were proved to be pathogenic to man. Further investigations are in progress, and it is still possible that the strain may be obtained for laboratory experiments, although as the patient has been apparently free from parasites for a long time the chances are not very great. Meanwhile, as I expect to be leaving the Gold Coast almost immediately, this preliminary note is published in order to draw attention to the fact that there is in West Africa a species of monomorphic trypanosome capable of infecting man.

TABLE I.—*Measurements of Length of the Monomorphic Trypanosome found in the Blood of a Native of the Gold Coast.*

Materials.	Number Measured.	Lengths in Microns.							Average Length in Microns.
		18	19	20	21	22	23	24	
First specimen ...	100	3	14	25	37	17	3	1	20.6
Second specimen ...	100	1	13	23	39	16	5	3	20.8
Totals	200	4	27	48	76	33	8	4	
Percentages ...		2.0	13.5	24 0	38.0	16.5	4.0	2.0	20.7

THE SIGNIFICANCE OF THE LYMPHATIC GLANDS SITUATED ON THE ANTERIOR SURFACE OF THE ATLAS.

BY A. ERNEST MAYLARD, B.S.LOND.,
SURGEON TO THE VICTORIA INFIRMARY, GLASGOW.

ONE, perhaps, of the commonest places for tuberculous lymphatic glands is just below the angle of the jaw—that is to say, at the upper part of the anterior triangle. The reason for this is probably to be found in the greater readiness with which they are infected by lymphatics passing from the mouth, and more particularly from decayed molar teeth. But the tonsils and upper parts of the pharynx may also be regions from which septic matter may be conveyed. From whatever source, however, derived it is certain that the infection very frequently extends not only to the more superficially situated glands but to those lying deep in the cervical region, as deep as the transverse process of the atlas.

The clinical significance of this implication of the deeper glands lies in the fact that treatment applied solely to the superficial ones will leave the deeper still untouched and a probable source of future trouble. It is a very common experience to be asked to deal with a "sore" in the upper part of the neck that will not permanently heal. The story usually obtained is that a glandular abscess has been opened, and possibly its walls scraped; that the wound healed but then broke down, and a small discharge ensued for a time, followed again by healing. This ding-dong condition of matters goes on for months, until the case at last comes into the hands of the operating surgeon for radical treatment. What is then found is that a circuitous sinus conducts down to a caseating and suppurating gland lying on the transverse process of the atlas. After this has been removed permanent healing takes place.

It is often solely for desired cosmetic effects that the practitioner is tempted to make a small incision into the superficial, enlarged, suppurating glands; and possibly he puts in a small drainage tube or lightly stuffs the cavity. His chief object is to produce as small a scar as possible. But, considering the protracted course which the condition is only too likely to take, there can be but little doubt that the best cosmetic results are obtained by the radical treatment—that is to say, by a free incision and a complete extirpation of the deep-lying glands. The dissection is often by no means easy, and, although quite free from danger in experienced hands, it should not be lightly undertaken. Both the jugular vein and the spinal accessory nerve are liable to be implicated; and when there is much in the way of periglandular inflammation and adhesions, one or the other, without due care, may be injured.

DEATH AFTER SALVARSAN.

BY
MANECK D. WADIA, M.R.C.S., L.R.C.P.,
CAPTAIN I.M.S.,
MEDICAL OFFICER, PRISONERS OF WAR CAMP, SUMERPUR, RAJPUTANA.

I AM much obliged to the Director Medical Services in India for permission to publish the following case, and to Captain P. Hayes, R.A.M.C., for comments:

A sepoy, K——, aged 23 years, was admitted into hospital on May 22nd, 1916. He had a chancre on the penis about six weeks before, which healed under treatment. There was nothing important in his past history. He was thin and somewhat anaemic, and presented a typical secondary rash on the body, with mucous patches in mouth and general adenitis. Nothing abnormal was detected in the chest and abdomen and the urine was normal. A dose of castor oil was given and he was kept on milk diet. Salvarsan 0.5 gram was given intravenously at 10 a.m. on May 23rd. He had a good deal of vomiting and

diarrhoea, and rapid, feeble, but regular pulse during the day, and was rather restless during the night. Next morning the vomiting had stopped and the pulse was stronger. He had five motions during this day but no vomiting. On May 25th the pulse was almost normal; the urine showed a fair cloud of albumin. On May 27th he was all right but weak.

On the morning of the 29th he was deeply jaundiced; the stools contained bile; the urine contained traces of bile and albumin. He was given calomel 3 grains, followed by magnesium sulphate ½ oz. three hours later, and was ordered milk diet.

On May 30th it was noted that he had had no sleep during the night; he had passed five motions, all containing bile. The liver was enlarged and tender; the spleen was not palpable; the pulse was regular but weak, the temperature normal. He suffered from hiccough.

On June 1st the jaundice was deeper; the motions were loose, and contained bile; the urine showed traces of bile and albumin, but no casts or crystals of leucin or tyrosin. Emetine hydrochloride 1 grain was injected hypodermically on May 31st and June 1st, once on each day.

On June 3rd his condition was becoming worse. The temperature was 99° F., and the pulse 70 and feeble. Jaundice was the same, and the liver was still enlarged and tender. Blood examination showed nothing abnormal. On June 5th the condition of the liver, stools, and urine was the same, and jaundice was still present. The pulse was 74, and feeble; the heart sounds were weak, but there was no murmur; nothing abnormal was detected in the lungs. The rash had faded a little, but the ulcers in the mouth and on the lips were worse. He was kept on milk, bovril, and brandy, but his general condition became worse, and at 5 p.m. he collapsed and died. *Post-mortem* examination was not allowed.

Two consecutive doses of 0.5 gram salvarsan from the same stock were given by me to another sepoy at an interval of three weeks; he had diarrhoea, vomiting, and feeble pulse for two days after the first dose, but very slight reaction after the second dose.

The interest in the case here recorded lies in the long period between the administration of the salvarsan and the manifestation of toxaemia. The symptoms would suggest acute yellow atrophy or phosphorus poisoning, but both are negatived by the fact of there being enlargement of the liver throughout, and also as to the former by the absence of leucin and tyrosin in the urine.

There must have been a storage of arsenic in the liver, giving rise in all probability to acute fatty degenerative changes in the cells.

Captain Armstrong, I.M.S., who has kindly looked up the literature on the subject, says that three similar cases have been recorded, in one of which a necropsy was performed. This was a woman who was given three doses of salvarsan at an interval of nine days without any untoward symptoms. Three or four days after the last dose she developed toxic symptoms, diarrhoea and vomiting, jaundice, enlargement of liver, and severe abdominal pains, and died. *Post-mortem* examination showed diphtheroid necrotic ulcers in the intestines, perforation of the stomach, and acute fatty degeneration of the liver.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

"SURGICAL" EMPHYSEMA DURING PARTURITION.

I AM recording this case as I have not heard of a similar one, and do not find the possibility of this condition arising during labour mentioned in several books on midwifery I have consulted.

The patient, A. B., aged 24, primipara, was being attended by a midwife, and was in labour fourteen hours before I was sent for. On my arrival she presented a most alarming appearance; the face was scarlet and swollen to twice its normal size, so much so that both eyes were completely closed. The upper part of the chest wall and the neck were also much swollen, and the affected parts presented all the characteristics of subcutaneous emphysema—that is, they were soft to the touch and fine crepitations could be distinctly felt on slight pressure. The extension of the emphysema was interfering with respiration, and both the midwife and relatives thought she was dying. I concluded that the condition was due to the rupture of some subpleural pulmonary vesicles caused by the violent straining, and I immediately made preparations to deliver by forceps. The child was abnormally big, and a large caput succedaneum had formed. Twenty-four hours afterwards the emphysema had somewhat abated.

In this case the condition would probably not have arisen had the midwife taken less responsibility on herself and summoned medical assistance earlier. I have no doubt she will exercise more care in future after the fright she experienced.

Blackhill, co. Durham. JOHN MURRAY, M.B., B.Ch.

CONCURRENT INFECTIOUS DISEASES.

THE notes of Drs. Rice-Oxley and Lambert Benson in the BRITISH MEDICAL JOURNAL of November 25th and December 16th, 1916, describing concurrent attacks of measles and chicken-pox, remind me of several instances of concurrent infectious diseases which I have met with here during the last twenty-five years.

I have seen mumps concurrent with whooping-cough and also with measles. On several occasions I have seen measles and chicken-pox in the same patient, and in two or three children I have met with three diseases concurrent—namely, measles, chicken-pox, and whooping-cough. Once I saw a boy with a very pronounced German measles rash and three days later the eruption of measles. He had been exposed to the infection of both diseases, and I had not the least doubt of the concurrence of the two diseases.

The above remarks show that in my practice concurrence of infectious diseases has not been very rare.

Bedford. W. GIFFORD NASH.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

BRISTOL ROYAL INFIRMARY.

CASE OF GAS GANGRENE IN CIVIL PRACTICE.

(By F. K. HAYMAN, M.B., B.S.)

ON July 28th J. T., aged 17, a munition worker, was brought to the casualty department, having sustained a severe crush of the left hand by a machine used for stamping certain metal parts of shells.

The contents of the thenar and hypothenar eminence were extruded *en masse* through the skin, and there was a cut on the palmar surface of the middle finger, extending down to the bone, and severing the flexor tendons.

The hand was soaked in eusol for about twenty minutes, and then, under a general anaesthetic, the parts were cleaned up with eusol and replaced as far as possible. There was no dirt on the hand other than "machine débris"; no sign or history of faecal or other contamination. A wet eusol dressing was applied.

On July 29th at 3 p.m., when he attended again, the hand was slightly puffy in the palm, there was no pain, and he felt perfectly well; his temperature was 99°. At 8 p.m. he again attended (as a result of his father taking his temperature, and finding it 104°), the hand was distinctly swollen in the palm and dorsum, and the middle and fourth finger. No fluctuation was found. The temperature was 104.6°. He was admitted, and the hand was fomented. This was about thirty-six hours after the injury. There was a trace of albumin in the urine.

At 1 a.m. on July 30th the hand was enormously swollen and tense; there was fluctuation in the palm and dorsum, and crepitation was found over the wrist-joint and the third and fourth fingers, which were semi-anaesthetic. There was solid oedema up to within two inches of the elbow-joint, and the hand was beginning to assume a dusky purplish colour. There was no pain, and he looked and felt well. The temperature was 104°, the pulse 120; glands not enlarged. I made very free incisions all over the hand and forearm up to the elbow; there was no pus, but gas, having a slight odour not offensive, escaped from the cuts on the hand. The arm was dressed frequently with eusol and peroxide, and oxygen was percolated through the dressing under jaconet. I proved that it got right through by lighting a glowing match at the other end of the dressing with it.

At 9 a.m. all the fingers were dusky, anaesthetic, and crepitant. The dorsum and palm had a similar appearance, but retained some sensation. The oedema of the forearm had largely subsided, and was now only evident in the lower third. The temperature was 103° and the pulse 130. Owing to the fact that the patient felt and looked so well, and that some sensation was retained, it was decided not to operate at once. He spent the day with his arm in a peroxide bath, and no further spread of gangrene occurred. The glands were not enlarged.

At 8 p.m. he felt and looked as usual, and was in no pain; but his temperature was now 102°, and his pulse 160 and markedly dicrotic. I therefore performed a flush amputation just below the elbow-joint, and injected eusol 50 c.cm. intravenously. The stump was kept in a eusol and peroxide bath. One hour after the operation his pulse was 90, and the temperature 99.6°. Three hours after the pulse was 104.

Subsequent progress was uneventful. The temperature and pulse settled in a few days to normal, the stump remained healthy, and on August 14th was trimmed up and sewn over. Some sepsis followed, but no gangrene, and the stump is now securely healed.

A surprising feature of this case was the complete absence of any constitutional symptoms, except the pulse and temperature. He was mentally and physically perfectly normal throughout, and in no pain.

Reports of Societies.

X-RAY APPEARANCES IN GAS GANGRENE.

At a meeting of the Association of Registered Medical Women on December 12th, 1916, Dr. AGNES SAVILL read a paper on the *x*-ray appearances in gas gangrene, as observed at the Scottish Women's Hospital, Royaumont, France, situated twenty-five miles behind the firing line. Of the cases admitted between July 1st and mid-September, 1916, 304 contained the organisms of gas gangrene, and of these 100 presented the clinical evidences of gas. Every wounded man was examined by the surgeon immediately on admission, and a specimen from the wound was sent for bacteriological examination. Cases demanding immediate surgical intervention were taken to the *x*-ray room and operating theatre without delay. Cases reported to contain anaërobic infection, even without clinical evidence of the presence of gas, were operated upon immediately, and this procedure was undoubtedly the means of aborting the course of gas infection and saving both limbs and lives. It was found that cases arriving within twenty-four hours of being wounded usually recovered, while those detained three days on the journey were usually lost. Experience showed that *x*-ray examination was of great value to the surgeon in revealing the presence of gas and its extent and situation; and by September it was even found possible to report the variety of gas infection. It was shown by Pech, radiologist to the military hospital at Creil, that the presence of fine striation of individual muscles was always associated with the *Vibrio septicus*, and the prognosis was very grave. Two cases of this kind at Royaumont died within twenty-four hours. Three totally distinct appearances were observed in the *x*-ray plates, which gave positive evidence of gas, and these, with few exceptions, corresponded to three distinct forms of infection: (1) Simple swelling with a pale misty outline, the degree of swelling giving some evidence of the amount of infection present. *B. perfringens* was the chief organism found in this form, owing probably to the oedema usually associated with this organism. (2) Swelling made up of dark woolly clouds, due to infiltration of the tissues by gas, accompanied at times by sharply outlined bubbles. This diffuse cloudiness was generally associated with *B. perfringens* and *sporogenes* together. (3) Striation, coarse and fine (both rare), the dark lines of gas infiltration mapping out the individual muscle fibres. The organisms found associated with this form were *Vibrio septicus* and *E. histolytica*, *B. fallax*, and *B. perfringens*. Fallacies to be avoided were actual loss of tissue, extensive ecchymosis, and abscesses; no reliance could be placed on negative plates. With regard to prognosis, simple swelling was most favourable, provided correct surgery were immediately performed. The type with cloudy swelling might run a favourable course unless deep-seated gas were present, when it was extremely serious. The presence of striation gave the worst prognosis.

Reviews.

ATYPICAL FORMS OF TETANUS.

Though tetanus in its ordinary manifestations has been shorn of most of its terrors during this war by prompt prophylactic measures, yet cases have occurred from time to time where, owing to the tardiness of administration of antitoxin, or perhaps to an attenuation of the virus, the disease declares itself in a localized form. These localized types are little known, and probably many cases are missed. A signal service to medicine has been rendered by MM. COURTOIS SUFFIT and GIROUX by their publication of *Les formes anormales du tétanos*.[1] The book is full of excellent information, written in the best French textbook style, the facts marshalled in orderly manner and clearly set forth, with no waste of words and no loss of perspective.

The authors divide abnormal or atypical forms of tetanus into three main classes: cephalic, monoplegic, and paraplegic; and the symptomatology, diagnosis, and prognosis of each form are carefully considered.

Cephalic Tetanus.

Cephalic tetanus, the authors say, very often escapes recognition owing to the fact that the wound of the face or head is so slight and has healed so quickly that no notice is taken of it and the clinical signs are frequently attributed to other causes. The simplest variety of this form (non-paralytic cephalic tetanus) is very rare and the only sign is trismus with contractions of certain facial muscles, with or without dysphagia. When the latter is present there is pharyngeal spasm, and feeding is difficult; there are usually convulsions of the neck muscles and sometimes respiratory difficulties. The less the effect on respiration the more hopeful the prognosis. Exceptionally a hydrophobic form has been met with; violent convulsive spasms, arising from the wound and spreading over the face, neck, and pharynx, eventually reaching the diaphragm, bring about grave respiratory troubles, dyspnoea and asphyxia. These last cases closely resemble rabies, and are almost invariably fatal.

Cephalic tetanus with facial paralysis has provided most cases for study. It occurs after head wounds, with the infection localized to the nerve area of the trigeminal. The symptomatology is characteristic and pronounced. At the beginning the contractions are limited to the cephalic, especially the facial, region, though later they may spread to adjacent areas. Facial paralysis may precede, accompany, or follow the spasms and the trismus. The paralysis is generally unilateral and in relation to the site of the wound, but there may be diplegia if the wound is near the middle line. When the paralysis is total the whole nerve is affected and hyperacousis and taste disturbances result; when it is partial the superior or inferior branches of the facial only are affected. Peripheral at first, it may become central by absorption of toxin along the nerve. The condition is not lasting, and when the infection is conquered it is seldom that it leaves traces behind. Such a disease must be carefully distinguished from the results of ordinary nerve trauma, from hysterical manifestations, and from tic douloureux of the face. It may be acute, subacute, or chronic in its progress. The slower it is the better the outlook. It is less fatal than the ordinary form of tetanus, the mortality not exceeding 50 per cent.

Cephalic tetanus with paralysis of the oculo-motors—a relatively rare form—occurs when tetanus follows wounds of the eye or its neighbourhood. The paralysis is generally the first sign of the disease, and for several days may be the

[1] *Les formes anormales du tétanos: Etude clinique, pathogénique, prophylactique et thérapeutique.* Par M. Courtois-Suffit et R. Giroux. Préface du Prof. F. Widal. Collection Horizon. Précis de Médecine et de Chirurgie de Guerre. Paris: Masson et Cie. 1916. (Cr. 8vo, pp. 177. Fr. 4.)

only symptom, thus rendering accurate diagnosis exceedingly difficult. The third nerve is almost always affected, but often the fourth and sixth as well, giving the symptoms of ptosis and strabismus, with more or less complete paralysis of the external muscles. This form may exist alone or be complicated by facial paralysis. The conditions must be differentiated from ocular spasms, cerebro-spinal and tuberculous meningitis, fracture of the orbit, fracture of the base of the skull with compression, and traumatic hysteria. The prognosis is not very unfavourable; chronicity is a factor of cure; when the condition has lasted from one to three months cure is to be looked for, and the ophthalmoplegia clears up fairly quickly.

Exceptionally there is another form of cephalic tetanus, of which the outstanding feature is the affection of the hypoglossal nerve with the syndrome of labio-glosso-pharyngeal paralysis. It is associated with facial paralysis, and is interesting as suggesting the nuclear origin of the paralysis in the course of cephalic tetanus.

Monoplegic Form.

In this there is localization of the infection to a limb, especially the wounded limb. The onset of the symptoms may be early or late; in early cases they come on in from four to five days after the wound, in late cases three weeks or more may elapse. The first symptoms are usually pains in the neighbourhood of the wound, soon followed by localized spasms. There may be convulsive shocks, with clonic movements and tonic contractions, and to the palpating hand the limb has the sensation of a block of wood. More or less distinct spasm of the abdominal muscles is frequently observed. Contrary to what occurs in the ordinary form of tetanus, the general signs here are of little value; the temperature is little if at all above normal, he pulse is moderately accelerated (100 to 120), but there is no irregularity, the anxious facies is perhaps a striking feature, the tendon reflexes are exaggerated, and there is hyperexcitability of the muscles and nerves to galvanic and faradic currents. Diagnosis is by no means easy. Spasmodic monoplegia due to cerebral or medullary cause, incomplete hemiplegia, causes of irritation to motor and mixed nerves, spasms due to lesions of bones, joints, muscles, and tendons, tetany, poisoning by strychnine, and hysterical contractions must all be carefully excluded. The more localized the infection, and the more chronic the case, the more favourable is the outlook, but the condition is always grave in view of the complications which may arise and the possible secondary generalization of the infection.

Paraplegic Form.

The paraplegic form of tetanus is divisible into two subclasses. In the superior form the arms, forearms, and hands are in forced flexion; in the interior form the lower limbs are in forced and fixed extension as a whole, with the foot in the position of equinus varus. The condition in its initial symptomatology may closely simulate tetany, hysterical paraplegia, and cerebro-spinal meningitis, but diagnosis should not long remain in doubt. Here slow evolution and cure are the rule.

The authors have devoted interesting chapters to the pathology, prophylaxis, and curative treatment of tetanus in general. The last is particularly good, informative, and judicial, and even for that alone the book should be in the hands of all military surgeons. It is an excellent contribution to medicine.

INCOME TAX.

We have received from the Medical and Dental Defence Union of Scotland a copy of the second edition of a pamphlet prepared by the Secretary, Mr. W. Findlay, and issued under the title of *Instructions to Members in regard to Income Tax Returns*.[2] The difficult task of condensing so complex a subject has been performed with admirable clearness and brevity. The treatment of the methods by which the "relief in respect of unearned income" is obtained and of the procedure in connexion with appeals is particularly successful. We gather that there must be one or two minor points of difference between Scottish and English practice, but it is not at all clear why "no allowance is made for wages of employees where such servants are used for professional and domestic purposes." So far as our experience goes, the portion of such expenses reasonably attributable to professional work is allowed in England; any other ruling would seem open to a *reductio ad absurdum*. On the other hand, the writer, in dealing with the question of motor expenses, recommends the charging of the cost of replacement rather than the percentage depreciation, whereas here the latter is refused on the apparently valid legal objection that such allowances do not apply to professional earnings.

On one point we find ourselves in disagreement with the "Instructions." We have consistently urged that advantage should be taken of the tacit consent of the authorities to the inclusion of receipts from appointments in the general return. The convenience of thus avoiding an allocation of expenses is obvious. The difficult question of "successions" naturally receives scant attention in a publication intended mainly to meet the normal case, but we are pleased to see that a lengthier note is considered necessary on super-tax. There is an error in the appropriately brief note on excess profits duty; the margin or abatement is £200 per annum not £100.

[2] 155, Saint Vincent Street, Glasgow.

NOTES ON BOOKS.

At Suvla Bay: Notes and Sketches,[3] by Mr. J. Hargrave, gives a vivid account of the experiences of a scout who enlisted in September, 1914, and went through the Dardanelles campaign as a sergeant in a field ambulance. The book will make a strong appeal to medical readers. The author does not hesitate to tell of the grimmer side of war, and some of his stories are grim enough, as that of the party from his ambulance who went out on a hazardous mission and never returned. The author emphasizes the value of the scout's training on the modern field of battle. Mr. Hargrave has a facile pencil, and the drawings and sketches with which the book is copiously illustrated are full of life and vigour, and convincing in their evident truth.

The *Oxford University Press General Catalogue*[4] gives a full and well-arranged list of all the books and periodicals published by the Oxford Press, together with a number of those issued jointly by H. Frowde and Messrs. Hodder and Stoughton. The *Catalogue* is of unusual interest because it gives a number of bibliographical details serviceable to prospective purchasers, including the size and date of the volumes advertised, and is also illustrated. The comprehensive index is particularly useful, comprising subjects as well as the names of the authors. The list of medical works and their authors shows that the Press keeps well abreast of the times, and can furnish the medical practitioner and student with almost a complete outfit of books.

[3] *At Suvla Bay: Being the Notes and Sketches of Scenes, Characters, and Adventures of the Dardanelles Campaign*, made by John Hargrave ("White Fox") whilst serving with the 32nd Field Ambulance, X Division, Mediterranean Expeditionary Force, during the Great War. London: Constable and Co., Limited. 1916. (Post 8vo, pp. 189; illustrated. 5s. net.)

[4] *Oxford University Press Catalogue*, November, 1916. Oxford, London, New York: H. Milford 1915. (Demy 8vo, pp. 574.)

THE CANADIAN ARMY MEDICAL SERVICE.

Report of the Board of Inquiry.

The report of the Board of Inquiry, appointed in November by Sir George Perley, High Commissioner for Canada, has been issued. It is signed by all the members, and is dated December 21st, 1916. The report opens with some general observations as follows:

The Board having assembled in accordance with War Office letter No. 121/medical/2893, A.M.D.I., dated November 25th, 1916, proceeded to consider the report on the Canadian Army Medical Services by Colonel H. A. Bruce, the Special Inspector General appointed by Major-General Sir Sam Hughes, and a reply thereto by Surgeon-General G. Carleton Jones, then Director Medical Services, Canadian Expeditionary Force. Both officers have been examined by the Board, and in addition evidence from the officers and others enumerated in the appendix No. 1, was heard. A report of the evidence taken and copies of various documents submitted to the Board are annexed to this report. The Board, in preparing its report, has not only taken into account the evidence submitted to it, but has ventured to incorporate into some of its recommendations its own knowledge of conditions so far as they affect the efficiency of the Canadian Army Medical Service.

In making this report the Board has constantly kept in view not only the welfare of the sick and wounded of the Canadian Expeditionary Force, but the interests of the Government and people of Canada, and has been especially careful in its comments upon the work of the Director of Medical Services, whose administration has been so severely criticized by the Inspector-General in his report and in his evidence.

It will be convenient to summarize here the principal points emerging from Colonel Bruce's report. These are—

(*a*) The concentration of Canadian sick and wounded in Canadian hospitals.
(*b*) The suitability of V.A.D. hospitals for the care and treatment of Canadian soldiers.
(*c*) The system of medical boards.

Before offering any general remarks on these topics, the Board thinks it right to explain that up to February, 1916, the accepted policy was to provide special hospital establishments for Canadian patients; that about that date, owing to various considerations, practical and sentimental, it was determined, with the consent of the War Office, to deal with Canadian patients in the same fashion as British patients are dealt with—that is, by distributing them throughout the United Kingdom to the great series of central hospitals, each with its group of affiliated auxiliaries.

In the report of the Special Inspector-General the latter system is condemned, and a return to the policy of Canadian hospitals for Canadian sick and wounded advocated. The issue is a fair one, for there is much to be said on both sides; but the Board, after very careful consideration, has come to the conclusion that the policy therein recommended is not only unwise but impracticable, having regard to the amount of accommodation that would be required owing to the increase of Canadian troops in Europe.

The arguments for and against are set forth under the headings into which this report is divided, but it will be convenient to consider here the principal reasons that have led the Board to the opinion that a reversion to the original scheme of concentrating Canadian sick and wounded in Canadian hospitals is impossible.

All through the report of the Inspector-General the dominating idea is a conception that the Canadian Expeditionary Force is something separate and apart from the imperial army, a conception that may be summarized as the "water-tight compartment" policy in matters medical. The Board is of opinion that as long as the Canadian Expeditionary Force forms an integral part of the imperial army, such a view is no more possible in the United Kingdom than it is in France; and, so long as Canadian troops continue to operate under the command of the Commander-in-Chief, British Expeditionary Force, it must continue to be impossible to discriminate in the medical arrangements of Canadian and British troops. The personal experience of the majority of the members of the Board amply confirms this view, so far as the arrangements at the French front and at the Overseas bases are concerned; and the Board has satisfied itself that it would be inadvisable to attempt separation on the return of the sick and wounded to the United Kingdom.

It appears to the Board that to separate, on their return to England, men who have fought side by side, must tend to undo the bond of brotherhood sealed in the face of the enemy. The Board is aware that these considerations of high policy do not strictly come within its purview, but cannot refrain from adverting to this aspect of the matter, because it would almost appear as if the report under consideration was based upon the conception that the Canadian Forces had a similar relation to the British armies as that held by the allied nations.

The policy that the Board ventures to attribute to Colonel Bruce would have prevented the use of Canadian medical units in the Mediterranean, because Canadian troops did not happen to be employed in that theatre of war, and the sending of Canadian hospitals to Paris for the use of the French sick and wounded. Indeed, the sending of Canadian medical units to the Mediterranean is criticized from this very point of view in the report of the Inspector-General. Again, and for similar reasons, the Board is in profound disagreement with the view that Canadian Army Medical Corps personnel should not be associated with the British Service in scientific inquiries and in other work; on the contrary, it is of opinion that such participation is both desirable and necessary in the best interests of the two services. The Board, too, is at variance with the contention that the services of the Canadian Army Medical Corps should in the main be confined to Canadian troops; field ambulances serve primarily the Canadian formations, but in the case of the line of communication units, their work must of necessity be largely with other than Canadian troops. This aspect of the case, it is fair to say, was repudiated by the Inspector-General when placed before him.

The Board feels bound to place on record that in some of the opinions expressed by Colonel Bruce he is misled by a lack of intimate knowledge of army organization and of the inter-relation of the various branches of the service, as in some of his criticisms he has failed to make allowance for the sudden expansion of the army and for the unavoidable want of specialized training in its ancillary services. Such imperfections as have existed are rapidly being remedied, and it is plain truth to say that in no war in history has sickness been so well controlled or the sick and wounded so well cared for. The Board, relying on its own observations and the evidence laid before it, is abundantly satisfied that the Canadian sick and wounded have been thoroughly well cared for, not only in the Central Hospitals, whether British or Canadian, but in the Voluntary Aid Hospitals, which Colonel Bruce criticizes. These latter hospitals are the outcome of a mobilization of the medical resources of the United Kingdom, and in them Canadian soldiers are not only well cared for professionally but are comfortable, happy, and at home. The Board desires to emphasize its dissent from the criticisms of these institutions, which it believes to be unjust and undeserved.

The other principal issue raised in the report of the Inspector-General, the system of Medical Boards, is dealt with in detail hereafter, and the Board agrees that there is much justice in the criticisms levelled at the complicated arrangements that have been permitted to grow up. With the reorganization proposed the Board is unable to concur, and has ventured, as the result of the combined experience of its members, to suggest a system that it believes to be simple and likely to be practical in operation.

The Board does not concur in Colonel Bruce's view that a complete reorganization from "top to bottom" of the Canadian Army Medical Service is necessary. In its opinion, the reforms he suggests would not remedy the defects he deplores, which are not due to the system, but to inexperience on the part of officers, military and medical, and to defaults in administration, which are commented upon in the detailed criticisms that the Board has felt it its duty to record.

The Board cannot conclude this general review of its findings without adding that the report of the Inspector-General ignores the good work done by Surgeon-General Jones and his staff under circumstances of novelty and great difficulty. The Board has not hesitated to criticize those matters wherein, in its opinion, the Director of Medical Services has failed, but does so with great reluctance, for it is satisfied that much of what has been accomplished has been the result of his zeal and industry, while the good relations of the Imperial and Canadian services are largely due to the tactful performance of the many delicate duties that fell to his lot.

The Board would also point out that the lack of an organized Canadian staff was a very serious handicap to the Director of Medical Services in his dealings with the important subject of non-effective troops.

The remainder of the report deals with Colonel Bruce's criticisms paragraph by paragraph. It will be seen that certain sections are of general interest, and have a direct bearing on several matters of concern to the profession in the United Kingdom.

I.—Soldiers arriving in England from Canada Medically Unfit.

The Board is agreed that large numbers of soldiers have come and continue to come from Canada who are unfit for service at the front. The cases come under two main headings:

1. Men who do not comply with recruiting standards as to age. Of one series of cases, numbering 1,366, submitted to the Board, 849 were either under or over age. As the recruiting medical officer is not required to consider the

age of recruits, the charge as regards the C.A.M.C. is reduced to the second class—namely:

2. Men who are unfit by reason of a physical disability. The Board is satisfied that a large number of men have been passed who ought not to have been passed, owing partly to inexperience on the part of examining medical officers, partly to hurry, partly to carelessness, and partly to the opinion of the medical officer being overridden by commanding officers.

The Board advises that examining medical officers should be responsible, as in the British service, that a recruit's apparent age corresponds with his declared age; that there should be inspectors of recruiting familiar with the requirements of the army in the field; that no soldier should be sent overseas unless classified by a medical board as fit for general service.

The Board has come to the conclusion that this important matter has not received the attention it deserved, and that adequate representations with regard to it have not been made. The Board is not prepared to define the share of the responsibility of the D.M.S. for this failure, because the Adjutant-General's Branch of the staff, to which the subject pertains, was not represented in England until recently, but it considers that, in the absence of the Adjutant-General's Branch, it was the duty of the D.M.S. to represent by all sources open to him the fact that large numbers of men were reaching England unfit for general service.

II and III.—Distribution of Casualties and Concentration of Hospitals.

Under this head the Board points out that Colonel Bruce's objections to the present system of treating a moiety of Canadian patients in imperial hospitals distributed throughout the United Kingdom, and his advocacy of the policy of concentrating them in purely Canadian hospitals, are interdependent.

As regards distribution, the Board recognized that the Canadian soldier returning to England from France is not in the same position as the British soldier so returning, but, despite this important difference, the Board is of opinion that, practically speaking, a system of distribution which is satisfactory in the case of the British soldier, need not be inefficient in the case of the Canadian.

The Board considers that what is required to meet the special circumstances of the Canadian soldier is an extension of the system of Canadian convalescent hospitals, and organized co-operation as regards inspection between the Canadian and Imperial services. The Board is satisfied that considerable difficulties must arise in the collection and distribution of Canadian invalids to Canadian hospitals, because the problem begins at the front, and, from the personal experience of the majority of the members of the Board, it believes that it is quite impracticable to earmark and collect Canadian casualties at the base in France, and that it would be difficult and inconvenient to direct them solely to Canadian hospitals in England. Special arrangements for their dispatch would be necessary, and while the Board had it in evidence from the principal embarkation medical officer that the difficulties are not insuperable, they are sufficient to enhance the complexities of an already complex problem. The administrative difficulties in this respect would, the Board believes, be found in practice serious, and would almost necessarily involve the provision of clearing hospitals at or near the ports in England. Even if the difficulties of collection in France could be got over, it would necessitate the holding of Canadian patients in France until a sufficient accumulation occurred to justify special arrangements for distribution on arrival in England. This policy the exigencies of war would be bound to frustrate. If, however, this proved to be possible, the difficulties of distribution to Canadian hospitals in England would disappear.

But the Board is of opinion that the present system must hold the field if it is found impracticable to find suitable hospital accommodation for the whole of the Canadian sick and wounded in the Shorncliffe area and its neighbourhood, to which it is important that any such scheme should be confined. The establishment of Canadian hospitals in England, even if all were situated south of the Thames, would not meet the requirements, but might even accentuate the difficulty of distribution, and, in either case, the Board is satisfied that the policy of centralization would be unwise and expensive, and is impracticable. It considers that it is unwise on broad grounds of policy, believing that it is to the best interests of both British and Canadian soldiers that they should meet one another, and, as illustrative of Canadian sentiment in this matter, remarks that the Canadian hospitals at Beachborough, Taplow, and Orpington are governed by explicit provisos on the part of the donors that they are not to be confined to the treatment of Canadian sick and wounded.

That such a policy would be expensive is certain, for it would probably be necessary to erect hut hospitals, at large cost and with much delay. The Board is of the opinion that such expenditure would not be justified without very grave and urgent necessity. It does not believe that any such necessity exists, for, after conversation with many Canadian soldiers in different hospitals and with officers and others familiar with the working of the present system, it has failed to discover any general sentiment among Canadian troops in favour of their exclusive treatment in Canadian, rather than in British, hospitals. The present system permits the individual Canadian soldier to select, subject to administrative convenience, the neighbourhood to which he would desire to be sent, and, while there is evidence that Canadian soldiers from time to time ask to be sent to a particular locality or transferred from one hospital to another, the reason generally given is to be near relatives in the United Kingdom, and is not generally associated with their treatment and comfort in imperial hospitals.

The Board does not suggest that the existing Canadian hospitals in England should be given up, and does not object to a reasonable extension of these hospitals, but, even without extension, there is no reason why any wish on the part of a Canadian soldier to be treated in a Canadian hospital should not be met, just as the desire to go to a particular neighbourhood in Great Britain is gratified whenever circumstances permit.

Even if sufficient separate accommodation could be provided for all Canadian casualties in one area in England, it would either be necessary to retain a large number of empty beds to meet the eventualities of war, or, if these were utilized for British patients, as Colonel Bruce suggests, then they might not be available for Canadian patients when the Canadian Corps was heavily engaged. In the opinion of the Board, such a policy must of necessity break down under the stress of war. The special advantages that Colonel Bruce claims for a policy of concentration can be attained with existing arrangements, which are sufficiently extensive to permit of the utilization of the special skill of Canadian physicians and surgeons in all branches of medicine and surgery.

The question of cost cannot be considered apart from that of the existing arrangements, whereby Canadian soldiers are subsisted in imperial hospitals, whether military or V.A.D., at a cost of three shillings a head a day, whereas the average cost to the public of Canadian soldiers in Canadian hospitals, as of British patients in British hospitals, is from six to seven shillings a head a day. The difference is due to cost of personnel and equipment. The Board thinks it right to state that similarly British patients are maintained in Canadian hospitals at the same charge of three shillings, but obviously the balance of advantage is in favour of the Canadian Government, and if Colonel Bruce's policy were adopted the many advantages of this reciprocal agreement would be very much diminished.

Although it has considered these questions on a money basis, the Board believes that, if it could be established that the Canadian soldier suffered from being treated in imperial hospitals, the Canadian Government would not consider the cost in any way, but there is ample evidence that Canadian soldiers have not suffered from being treated in imperial hospitals.

This important subject has been dealt with at some length, because the chief consideration in the reorganization suggested by Colonel Bruce is a policy of preferential treatment, which the Board considers impracticable in its application, and which it believes to be unwise and opposed to Canadian sentiment.

IV.—Unnecessary Detention in Hospitals, etc.

The Board does not agree that there is a lack of efficient medical inspection in hospitals, but agrees with Colonel Bruce and Surgeon-General Jones that additional inspec-

tion of Canadian hospitals, and of Canadian patients in British hospitals throughout the United Kingdom, is desirable from the Canadian standpoint. There is evidence that the desirability of special inspections of Canadian patients in British hospitals was not fully recognized by the then D.M.S. until July of this year, but the Board is of opinion that this policy, with which the Board is in complete sympathy, should have been initiated at an earlier period. From early in the war the Canadian Red Cross had organized a system of visits to Canadian patients in British hospitals throughout the United Kingdom, and the valuable information collected in this fashion was available to the D.M.S., and frequently utilized by him.

The Board agrees with Colonel Bruce and Surgeon-General Jones as to the desirability of additional consultants being appointed, and thinks that there is ample scope for a consulting surgeon, as well as a consulting physician, in Canadian hospitals in the United Kingdom, although it recognized that Canadian hospitals have had the advantage of the advice of experienced consultants. The Board suggests that it would be better if Canadian consultants were appointed to the Imperial Army, instead of their services being confined to Canadian hospitals, and if this policy were adopted it might apply not only to the United Kingdom but to France. The Board thinks it right to refer to the allegation that there have been many errors of diagnosis and treatment. The Board is decidedly of the opinion that there is no cause for alarm on this score, as such errors as have come to notice are incidental to the exigencies of active service, and believes that they do not prevail to as great an extent as in the ordinary course of practice in civil hospitals whether in Europe or Canada.

In opposition to the views of both Surgeon-General Jones and Colonel Bruce, the Board is of opinion that it would be preferable that the head of the medical service should remain in Ottawa as the principal medical adviser of the Government upon all questions, such as the medical examination of recruits, the organization of new units, selection of medical officers for commissions, and other questions upon which the Government in Canada might desire the advice of a senior and responsible officer, matters which, in the opinion of this Board, are intimately bound up with the success of the forces in the field.

The Board is agreed that there is a considerable accumulation of convalescent Canadian patients in imperial hospitals, and that this is due to the insufficiency of accommodation at present in Canadian convalescent hospitals. The Board is also satisfied that there are in the United Kingdom a large number of Canadian invalids who ought to be sent back to Canada, but whom it has been impossible to repatriate because the available accommodation in Canada has been insufficient. The Board attaches the greatest importance to the early provision of sufficient accommodation for returning invalids in Canada, and directs attention to the fact that all invalids returning to Canada have so far been conveyed in returning transports or passenger steamers. In view, however, of the increased number of Canadian troops in Europe and the growing number of serious cases, who it is generally agreed should be sent to Canada at an earlier stage, the Board suggests that the provision of a regular hospital ship should be considered.

V.—Use of V.A.D. Hospitals.

The Board of Inquiry does not concur in Colonel Bruce's recommendation that the use of V.A.D. hospitals by the C.A.M.C. should be discontinued, and makes the following remarks on the system:

1. *Inefficiency:* It does not agree that, as a class, the V.A.D. hospitals are inefficient, and the evidence which, to Colonel Bruce, indicated inefficiency, was really due to defective classification, whereby some V.A.D. hospitals, which were not equipped for all purposes, occasionally contained patients for whom treatment should have been prescribed in a hospital of a higher scale. Even in such cases, facilities for the transfer of such incidental admissions to primary hospitals were always available, and in no case did the Board find that faulty treatment could fairly be attributed to the V.A.D. system.
2. *Expense:* The charge for a patient in a V.A.D. hospital never exceeds three shillings a day, and the Board has it in evidence and is satisfied that the cost per patient in a military hospital is at least six shillings per day.
3. *Unsatisfactory:* Colonel Bruce's point of view would appear to be that those hospitals which are the inevitable outcome of a general mobilization of the medical resources of Great Britain are unsatisfactory from an administrative and professional point of view, but the Board is satisfied that in no other way could the situation arising out of the war have been met, nor could it be altered now without vast and unjustifiable expenditure. The Board in its report passes in review the following points mentioned by Colonel Bruce as evidence of the unsatisfactory nature of these institutions:

(*a*) *Inconvenient Location*, the Board considers, was in many instances inevitable, as accommodation had to be made use of wherever available. The inconvenience is largely minimized by the system of classification of patients, by ample facilities for transportation, and by periodic inspections by imperial and administrative officers.

(*b*) *Medical Staff:* The medical staff is generally found from the local practitioners, who nearly all give their services gratuitously and make large sacrifices in so doing. The investigations of the Board do not support these allegations of inefficiency. The standard of professional efficiency naturally varies, but there is no ground, even in the special reports made by Colonel Bruce's direction, for the grave indictment contained in his report, "a good deal of the surgery is bad"; and if patients have been retained in these hospitals too long, it has been caused by the insufficiency of accommodation in Canadian convalescent hospitals and to delays in connexion with the C.A.M.C. in England.

(*c*) *Nursing Staff:* In all hospitals there is a nucleus of trained nurses (10 per cent.) whose work is supplemented by the devoted efforts of the Voluntary Aid Detachments, the members of which have undergone courses of instruction in first aid and home nursing, and who, after two years of hospital work, are many of them so efficient that the Imperial Government has not hesitated to send them to the great hospitals in France and in the Mediterranean. In no case has the Board had reason to be other than satisfied with the nursing in these institutions.

The Board states that the comments made in Colonel Bruce's report on the V.A.D. hospitals have been widely resented, and expresses the opinion that these strictures are unjustified and regrettable. While it agrees with Colonel Bruce that patients could sometimes be more advantageously treated in, and more speedily evacuated from, large military hospitals, the advantages of the V.A.D. system should not be overlooked in this regard. In these hospitals the Board found the Canadian patient well fed, comfortable, and happy, and receiving an amount of care only possible in institutions organized on the lines of "the home." This has been an enormous asset in the case of soldiers widely separated from their kith and kin.

VI.—Administration of Shorncliffe Group of V.A.D. Hospitals.

The report explains the system under which V.A.D. hospitals are affiliated in groups to central military hospitals and the particular arrangements made at Shorncliffe. It expresses the opinion that the Canadian staffs employed in connexion therewith have been larger than were necessary. It does not agree that the employment of C.A.M.C. personnel should be confined to purely Canadian institutions or that the Canadian ambulance service should not be used for imperial patients. In all these points the Board is opposed to the policy suggested by Colonel Bruce and in agreement with that carried out by General Jones.

VII.—Relations with the Red Cross.

The report of the Board makes reference to the necessity for the continuance of the past harmony between the Red Cross Society, British and Canadian, and the medical service, and considers that the admitted irregularities at one place do not vitiate the policy, but it adds that while rumours of irregularities were widespread, they apparently did not reach the ears of the D.M.S. The Board also adds that glaring departures from accepted service methods of administration passed unnoticed at Surgeon-General Jones's inspections.

VIII.—Detailing of C.A.M.C. Personnel for Imperial Service.

The Board disagrees with Colonel Bruce, and expresses the strong opinion that the forces and resources of the army must be pooled in this struggle, and that interchange of personnel is desirable and necessary in the interests of both services. It is of opinion that the very instances quoted by Colonel Bruce prove the desirability of such interchange, and believes that the policy adopted by Surgeon-General Jones will commend itself to the authorities.

IX.—Situation at Shorncliffe.

With regard to the situation at Shorncliffe, where the A.D.M.S. Canadians was also A.D.M.S. Dover (British), the Board, both from its own observations and experience and

from the evidence submitted, is opposed to the opinion expressed in Colonel Bruce's report. The Board is satisfied that the arrangement has been, and is, a good and satisfactory one as regards both the Canadian and British interests.

X.—Surgical Operations not Tending to Increased Military Efficiency.

The Board agrees with Colonel Bruce that much surgery fitting in civil life is not advisable in military practice, and has evidence to the effect that efforts have been made to induce newly commissioned medical officers to regard physical unfitness from a military point of view, and that experience has effected a marked improvement in this respect. It appears that in the appendix to his report mention was made of twenty-one cases, and the Board states that one at least of these has come under its attention. The hospital records of that case were, the Board states, incorrectly reported by Colonel Bruce. The man had not suffered from the disability stated, the operation performed was not as stated, and the mention of the surgeon's name accentuated the grave injustice of the criticism.

XI and XII.—Special Hospitals.

The Board is of opinion that a special hospital, such as that at Ramsgate, is essential. If treatment had to be delayed until the patient could be sent to Canada, even if sufficient accommodation existed there, the beneficial results of early treatment would not be attained. The Board, however, recognizes that many cases have been admitted and detained there whose immediate transfer to Canada was desirable, and this remark is applied in a special degree to cases of amputation. The Board, however, had evidence that the facilities existing in Canada are not as yet sufficient to meet the requirements in this respect. The Board, while recognizing that trades should not be taught in England, believes that there is a distinct therapeutic value in work for selected cases. The value of institutions in fitting men to return to duty was shown by the report of the officer commanding, which stated that 60 per cent. of the patients were discharged to full duty. Similar remarks are made with regard to Buxton Hospital, and the report states that Colonel Bruce admitted that his criticism had reference to its use for cases of chronic rheumatism. The Board is in agreement with his views in this respect. The consulting physician reported that seventy-one of all the cases treated at Buxton had returned to full duty. The Board states that it holds that this hospital serves a useful purpose.

XIII.—Venereal Situation.

The Board finds that the efforts of the D.M.S., soon after his arrival in England, to secure adequate provision for these cases were not invariably supported by the higher authority, proper accommodation was not provided as asked, and, as a result, the discipline and control essential in this class of case were not secured. A solution of the difficulty can only be reached, the Board holds, by co-operation between the medical service and the Adjutant-General's Branch, and concurs in the view that the segregation of all such cases in an area by themselves, under special arrangements for treatment and discipline on the lines of a convalescent hospital, which combines treatment and training, is essential.

XIV.—Infectious Diseases.

The Board states that the system of utilizing the isolation hospitals of local authorities is that generally adopted by the British service whenever possible, and considers that it was properly followed in this instance.

XV.—Medical Board Situation.

The Board of Inquiry agrees that there is a necessity for reformation in the medical board situation and in the classification of casualties. It is of opinion that an easy solution of the problem would be the adoption of the British system so far as applicable, and makes suggestions in this direction.

XVI.—Records.

The Board generally agrees with the criticisms made by Colonel Bruce, but points out that they are of universal application, and apply to all medical services in all wars. The desirability of improvement has not been lost sight of, and all available information is the subject of record by the Medical Research Committee. The Board does not agree that the defects in the system are attributable to the C.A.M.C., or that the proposals of Colonel Bruce are practicable. It is satisfied that Surgeon-General Jones has done a great deal towards the establishment of a better system than has hitherto been available in armies in the field.

XVII.—Pensions.

The Board notes that Colonel Bruce withdrew certain remarks to which his attention was drawn, and expresses the opinion that the ultimate investigation of pensionable cases should take place in Canada.

XVIII.—Co-ordination.

Many of the matters under this head are dealt with by the Board in its comments on the first section of Colonel Bruce's report. It is of opinion that the only course is the enforcement of stringent examination on enlistment, and adherence to whatever standard of fitness may be laid down in regulations from time to time. As to questions raised with regard to quarantinable diseases, such as trachoma, the Board agrees with Colonel Bruce that special action should have been taken to obtain sanction for the return of such cases to Canada.

XIX.—C.A.M.C. Personnel not used to Advantage.

The Board disagrees with the contention underlying Colonel Bruce's report that the services of officers and other ranks C.A.M.C. should be confined to Canadian troops. It does not accept the statement that Canadian medical units are not serving, except in a small proportion of cases, Canadian sick and wounded in France. The statement is found to be incorrect as regards the thirteen field ambulances, and as regards the casualty clearing stations and stationary and general hospitals, the Board considers it obvious that their employment on the line of communication necessitates their being used for all troops using that line. The Board is therefore of opinion that Colonel Bruce did not appreciate the need of trained experts at the base and in casualty clearing stations, and holds that a specially trained practitioner who can efficiently command a field ambulance is, as a rule, of more value at the front than as a specialist in a general hospital.

XX.—Consulting Specialists.

The Board is agreed as to the desirability of appointing civilian practitioners of eminence as consulting physicians and surgeons to Canadian hospitals in the United Kingdom, but holds that the appointment of consultants to the Expeditionary Force is a matter for the decision of the imperial authorities. (See IV, above.)

XXI.—Discontent as to Promotion.

The Board dryly remarks that this source of discontent exists in all armies. It found no evidence that it was abnormal in the C.A.M.C. It considers that the initial error lay in giving no lower rank than that of captain to officers joining the C.A.M.C. It recommends that the ordinary rules of promotion be observed and the senior officer selected for promotion, provided he has all the necessary qualifications, and that all future first commissions be in the rank of lieutenant.

XXII.—C.A.M.C. Training School.

The Board agrees with Colonel Bruce's statement that the C.A.M.C. training school has never been properly organized; it has not yet been given an establishment, and only recently suitable accommodation. As it is in effect the dépôt of the Canadian Army Medical Corps overseas, the Board considers it of particular importance that it should be fully organized under an officer with practical experience in the field. It finds that efforts were made by the D.M.S. from time to time to get a suitable location and that no responsibility attaches to him, as he did not receive assistance or support from the authorities. It recommends that this important question should receive early consideration.

XXIII.—Economy in Management.

The Board does not agree that in the operation of the medical service sufficient attention has not been paid to economy in management; on the contrary, the various arrangements that have come to its knowledge have been generally most advantageous to the Canadian Government.

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SATURDAY, JANUARY 6TH, 1917.

1916-1917.

THE war, and the strain on the resources of all classes caused by its prolongation, has led to a sort of grand inquest of the nation not confined to the House of Commons. All classes have taken a share in it, and all the organizations of peace, and all the institutions which have grown up under it, have been examined and their defects searched out. Mankind gives itself, in these fierce times of stress, the blessed consolation of a belief that things will be better after the war than they were before—that there will be a new spirit in a new-made world.

In the conduct of the war we seem to have reached the stage of construction when the critics are being set to mend matters; in the conduct of civil life we seem to be still mainly in the stage of criticism seeking to destroy what it judges to be defective. Medicine has not escaped this general tendency; it does not seek to escape it, and its keenest critics are those of its own household. We have seen the very fundamentals of the principles of the treatment of wounds re-examined, we have seen bacteriology and intensive clinical observation and laboratory investigation applied to the analysis of known epidemic diseases with resulting improvement in prophylaxis and administration, and we have witnessed the recognition of some diseases of this class which are either new or hitherto rare and imperfectly studied.

It has been chiefly on questions of organization that criticism has been loudest, and the organization of the medical profession has come in for its share. We are told by many voices that the medical body politic is sick. At the one extreme we have the physician who prescribes trade unionism, and at the other him who as vehemently recommends a State Medical Service. The two prescriptions are incompatible, and the patient, who is not convinced that he is so sick as his doctors make out, may be forgiven if for the present he declines to swallow either. Among the advocates of a State Medical Service are those who seem to attach most importance to the hard case of the young man serving in the Royal Army Medical Corps who, when demobilized, will be at a loose end, and, having served his country, ought not, it is said, to be put to the inconvenience of beginning civil work with his foot on the lowest rung of the ladder. To admit that there is something in this argument is not to accept it as conclusive. Other advocates rest their case chiefly on the contention that a State Medical Service would ensure greater efficiency not only in the prevention but also in the treatment of disease; they seem bent on reviving the scheme of the Minority Report of the Poor Law Commission, and are fascinated by the idea of a graded service, somewhat on the lines of the Royal Army Medical Corps, which would attend not only to prevention, but to clinical treatment. Both classes of advocates agree in recommending a State Medical Service on the ground that it would eliminate competition. That competition is an evil they assume as axiomatic; so far from being axiomatic, however, the assumption needs very clear proof, for it is contrary to the history of human development, and contrary, indeed, to the whole doctrine of evolution.

At the other extreme we have those who vehemently demand a trade-union system. We believe that they are flogging a dead horse, not so much because they could only attain their ideal by a disruption of the profession, but because in the conditions under which the profession exists and must always exist unless converted into a State service, a trade union would not give any real powers beyond those possessed by a voluntary association such as the British Medical Association. The grounds for this opinion were very fully set out in a reasoned and fully documented statement of the position published a few years ago. The facts and deductions in this statement have been ignored but they have not been controverted.

The British Medical Association comes in for the criticism of each of these opposing factors because it has shown no readiness to accept the panacea of either. We will here lay no further stress on the point that the two schemes are incompatible, if not mutually destructive; rather we would say that we are certain that the Association will welcome all fair criti ism, and all attempts, from whatever quarter, to make it a more efficient instrument for the maintenance of the honour and interests of the profession; but there are many who, in their eagerness to promote their own views as to the policy the profession should follow in the future, take to denouncing the Association instead of setting themselves to convince their fellows.

The ordinary medico-political work of the Association has not been intermitted during the past year, though it has necessarily been curtailed by the absorption of so many active workers on war service, many of them abroad. It has continued to give constant attention to the many matters connected with national insurance which affect not only those actually working under the scheme, but more and more all members of the profession engaged in all kinds of practice; it has represented the views of the profession with regard to the new official schemes for maternity and child welfare, and the control of venereal diseases, and has given expression to the wishes of the profession on many other matters touching its special interest in England and Wales, in Scotland, and in Ireland.

The organization of the profession to meet the strain which the war puts upon its resources was taken in hand at an early date, and the work connected with it has involved the expenditure of much time, energy, and money. The establishment of the Central Medical War Committee for England and Wales, which works with local committees, and with a national committee in Ireland, was due to the initiative of the Association, and the English committee is in close co-operation with a similar committee established in Scotland, and with the special Committee of Reference of the Royal Colleges in London. These committees were recognized under the Military Service Acts as the Central Professional Committees for England and Wales and for Scotland, and the Reference Committee was similarly recognized for certain special purposes. They are now representing to the Government the desire of the medical profession, should mobilization of the nation for national service become necessary, to organize the scheme as it affects the medical profession so as to secure the highest efficiency with the least dislocation of civil work.

It is a matter of regret that the scientific work of the Association has perforce been so greatly curtailed during the war. It has only been possible to hold annual general meetings for the transaction

of business; it has not been possible to arrange for meetings on the customary large scale in the sections of which clinical discussions could take place. There are many reasons for this, which must be obvious to everyone; among them is the fact that so large a proportion of the more active minds of the profession are at present engaged in war work. The columns of the Journal have necessarily reflected this bent of men's minds, and we are glad to be told by one in a position to judge, that the British Medical Journal "has taken the chief place as the diary of men's thoughts from month to month." The scientific work of the Branches and Divisions has also suffered seriously during the war. Apparently in the majority of instances no meetings for scientific discussion have been held, but the reports of the few meetings of the kind which have reached us seem to show that it would now be possible for other Branches to arrange to make experiments on the same lines. We have received and published from time to time interesting reports of medical meetings in the armies, and the last example will be found this week at p. 26, where a meeting during the siege of Kut is reported. If medical men under the trying circumstances of that siege were able to meet and discuss with so much effect topics of purely medical interest, it occurs to us to ask whether Branches in this country might not now be able to follow their example.

THE INCOMPLETE CURE OF THE CONSUMPTIVE.

I.

The treatment of tuberculosis by open-air methods in chest hospitals and sanatoriums has now been extensively tried in all civilized countries.

So much has been claimed for it by enthusiasts and so many promises have been held out by promoters, political and otherwise, that the time has come when the question may reasonably be asked: To what extent are all these prophecies and promises being fulfilled?

Abundance of evidence is available to prove that tuberculous affections of bones, joints, and glands are far more successfully treated in the open air than in closed institutions. Recovery is now shown to be possible in cases that were formerly regarded as hopeless. But for all such cases prolonged treatment is necessary, and they form but a small percentage of the total incidence of tuberculosis. To the lay mind, at any rate, the term "tuberculous disease" is synonymous with consumption of the lungs. How does the matter stand with respect to the latter? Has the introduction of sanatorium treatment produced any marked improvement in the case incidence or in the average death-rate?

It has been frequently pointed out that ever since the year 1837, when registration was first attempted, there has been a steady diminution in the death-rate from consumption on the whole, although fluctuations have been noted at irregular periods. It does not appear, however, that any striking change has been brought about during recent years, such as would be expected if the new methods had achieved the success that had been predicted for them.

In the course of a closely reasoned commentary on the parts played by heredity and environment respectively, Professor Karl Pearson, writing in 1912, presented statistics to prove that the death-rate from phthisis during the period between 1847 and 1866 was already falling much more rapidly than the general death-rate, and that this proportion was still more noteworthy between 1866 and 1891, whereas, during the last period, from 1891 to 1910, the most active period of the antituberculosis "crusade," the rate of fall, so far from being accelerated, would appear to have been retarded. A similar conclusion with respect to mortality was arrived at by Messrs. Elderton and Perry in 1910. In a special comparison between the pre- and post-sanatorium days they appear to have been reluctantly compelled to admit that no proof could be detected to indicate that the introduction of the new methods had been followed by diminished relative mortality.

The conclusions of trained statisticians cannot be ignored, more especially when they are supported by the general, if less precise, balance of clinical opinion, and therefore it must be taken as agreed that, in so far as reduction of death-rate is concerned, the treatment of consumption by open air and sanatorium methods has not fulfilled the promises of its earlier promoters.

The ratio of case incidence to population is not easy to determine for purposes of comparison. Only since the introduction of notification has any semblance of accuracy been approached. In some of the latest reports from county sanatoriums the records tell of numerous cases, only notified after death. In one of them as many as 425 such unnotified deaths are tabulated as having occurred during the year 1915.

It is thus impossible to form from such imperfect data any clear idea as to the relative increase or decrease of the disease in general, but the great fact remains for contemplation that the necessary accommodation has not yet been found for the large number of consumptives who have been recommended for sanatorium treatment, by tuberculosis dispensary committees or by Insurance Commissioners, and that a very considerable proportion of them are a source of danger to others.

Among the many influences that may be at work to maintain and foster the spread of tuberculosis, that of housing must always take a prominent place. In his Harveian oration before the Royal College of Physicians in 1911, the late Dr. Theodore Williams emphasized the point that the task of reducing or abolishing tubercle does not lie wholly with the doctors, but also with those who have it in their power to remove or lessen the principal causes for the spread of tuberculosis. Amongst these he mentions overcrowding, insanitary houses, lack of pure water and milk, and the want of open spaces and adequate means of ventilation. The experience of all medical officers of health has been in agreement as to most of these evils, and much has been done to remedy some of them.

In his report for the present year, the medical officer of health for Derbyshire repeats with emphasis a well-considered opinion that the problem of tuberculosis is essentially a housing problem. It is in the overcrowded, ill-ventilated home that the disease is fostered and spread. Even where cleanliness prevails and good water and milk supplies are secured, the presence of one tuberculous person, occupying the same living and sleeping rooms as a number of other inmates, presumably healthy, is injurious to the one and a constant source of risk to the others. So potent is this factor that tuberculosis has been defined by established authorities as a disease of the dwelling, the affection being chiefly acquired in bedrooms.

Evidence collected by Sir Shirley Murphy showed that the death-rate from tuberculosis in London steadily increases with the proportion of the total population, living more than two in a room, in tenements containing less than five rooms.

Although it obviously operates to spread the disease, overcrowding must not be regarded as the cause of it. The evil effects are only manifested in places where a source of infection already exists.

Tuberculosis thrives in stagnant air, especially if it be contaminated by animal exhalations. Its development and progress are checked in pure air, frequently changed.

These facts being fully known and widely recognized, the very simple conclusion follows that in order to restore the affected individual to health and to protect his immediate surroundings from risk of infection, some means must be adopted to remove him to a hygienic environment and to maintain him there so long as he shows evidence of infectivity.

But under present conditions a vast amount of public money is being expended in the temporary repair of the damage done by overcrowding, a considerable proportion of which is being deliberately wasted, with the connivance, if not the approval, of the authorities concerned.

No one conversant with the subject can ignore the fact that patients in various stages of disease are constantly being permitted, on discharge from chest hospital or sanatorium, to return to the identical conditions of life from which they had been temporarily rescued, still discharging bacilli in their excretions.

No doubt a few may be able to maintain the health the sanatorium has restored to them, but very many others will relapse for lack of a more extended treatment. Their former life is resumed, and no return will be forthcoming for all the care, attention, and money that have been expended.

The false economy of half measures is proverbial, and no better instance could be adduced than this one-sided system of dealing with tuberculosis.

It is satisfactory to note that in some districts attempts are being made to shake off this reproach and to organize a system more in keeping with the dictates of common sense. Recent reports show that efforts are being made to supply shelters where the infected individual who is still able to work may spend his nights for an indefinite period in fresh air and alone. The amount of interchange of air needed for the successful treatment of pulmonary tuberculosis is far in excess of that which is usual in most households. It can be provided in specially constructed buildings, and suggestions have been made, and some of them carried into effect, for the provision in industrial districts of rows of cubicles, open to the air on one side, and efficiently protected from rain storms, or by the construction of shelters on existing outbuildings, and approached from the first floor of the dwelling in the patient's own home. But all such structures have to be provided at public expense in the first instance, and, although a moderate return in the way of rental might be forthcoming, the chief return would take the form of additional wage-earning power to the community.

THE CANADIAN ARMY MEDICAL SERVICE.

THE general tone and purport of the report of the Board of Inquiry, appointed last November by the High Commissioner for Canada to inquire into the criticisms contained in a report made by Colonel H. A. Bruce, Special Inspector-General, Canadian Army Medical Service, will give much satisfaction both to that service and to the public. The Board was instructed to express its opinion as to whether the criticisms were justified in whole or in part, and to state whether it endorsed and concurred in Colonel Bruce's recommendations. Speaking generally, the Board does not endorse the criticisms nor concur in the recommendations. It is particularly satisfactory to us in this country to know that the experienced officers constituting the Board are abundantly satisfied that the Canadian sick and wounded have been thoroughly well cared for not only in the central hospitals, whether British or Canadian, but also in the V.A.D. hospitals. This finding entirely confirms the impression we formed from observation both in France and England, and from communications received at various times during the last couple of years. The Board does not approve the recommendation which would have had the effect of segregating Canadian sick and wounded. We gather from the report of the Board that Colonel Bruce must have started with a mistaken view of the relations which should exist, and we are glad to say do exist, between the Imperial and the Canadian forces, including the medical corps of each. They have fought together and worked together, ever ready to give help each to the other as occasion arose. To what a degree Colonel Bruce allowed himself to be obsessed by what the Board calls the "water-tight compartment" policy appears from a paragraph which implies that Colonel Bruce entertained the view that the Canadian Army Medical Corps personnel should not be associated with the British service in scientific inquiries. The medical profession everywhere will sympathize with the words in which the Board professes its profound disagreement with this view, and emphasizes its contrary opinion that such participation is both desirable and necessary. It is necessary in the best interests of the two services, and above all in the best interests of the fighting men for whose benefit the two services exist. It is, indeed, extraordinary that at this time of day such a contention should have been raised. Colonel Bruce is a surgeon of distinction, but military medical administration is a special branch of medicine not to be learnt in a day. The civilian practitioner has accommodated himself unconsciously to the conditions of civil life, but an army is a community living a very special kind of life, and a civilian thrown suddenly into it cannot be competent to judge. The Board is of opinion that Colonel Bruce failed to allow for the sudden expansion of the army and for the unavoidable want of specialized training in its ancillary services; but it states that such imperfections as have existed are rapidly being remedied. The conditions under which the Army Medical Services have had to work during the operations in France have been in many respects novel, and this fact, apart from the enormous expansion of the armies, has created many difficulties. In the opinion of those best qualified to judge they have been overcome with most remarkable success. That this is the simple truth is shown by the praise Sir Douglas Haig in his dispatch accords to the work of the medical service, both Imperial and Dominion. On some points the Board recommends further reforms; its recommendations have to do in particular with the medical examination of recruits in Canada, which it considers were, for various reasons, insufficiently strict, and with the system of medical boards. The Board is of opinion that there is much justice in Colonel Bruce's criticisms of the complicated arrangements that have been permitted to grow up in this latter respect. Though it is unable to agree with the reorganization he proposed, it recommends the adoption of a system which it believes will be simple and practical in operation. We may perhaps be permitted, in conclusion, to congratulate the officers of the Canadian Army Medical Corps on the result of the inquiry, which will leave them free to go on with the good work they have been doing for Canada and the Empire, and to continue steadily to improve it in the light of increasing experience. We understand that the High Commissioner, who is Minister for the Canadian Expeditionary Force, has cancelled Colonel Bruce's appointment as Special Inspector-General.

DUBLIN UNIVERSITY: PARLIAMENTARY REPRESENTATION.

By the promotion to the judicial bench of Mr. James Campbell, who was the junior member of Parliament for the University of Dublin, a vacancy now exists in the parliamentary representation of that ancient seat of learning. Two candidates offer themselves for election. One is Mr. Samuels, K.C., who was defeated on a former occasion by Mr. Campbell, but who, as a member of the Senate, and with a seat on the Council, claims that he has a very thorough knowledge of university requirements. The second candidate is Sir Robert Woods, M.Ch. (*honoris causâ*), the distinguished Dublin specialist in diseases of the throat and nose, who is honorary professor of laryngology and otology in the University, an ex-president of the Royal College of Surgeons in Ireland, and ex-president of the Leinster Branch of the British Medical Association and of the Irish Medical Association. As between these two candidates, there can be no question that Sir Robert Woods would make the better representative of the University in the House of Commons. For nearly a century, with the single exception of Lecky the historian, lawyers have represented the University, and the time has come when the medical graduates may properly claim that this succession of legal talent, however distinguished, should be broken. The House of Commons already contains a very large proportion of lawyers; they constitute some 25 per cent., whereas the percentage of representatives of science and medicine taken together would be shown by some figure with a decimal point in front of it. Its debates and legislation on matters affecting public health, and the application of science to national needs suffer by reason of this paucity of trained minds, and no occasion for remedying this defect in our national armament should be let slip. By sending Sir Robert Woods to the House of Commons the electors of Dublin University will have gone some short way to diminish the evils that must necessarily arise when medical men and men of science are in a hopeless minority in the Houses of Parliament. Sir Robert Woods is a broad-minded, tolerant man of scientific attainments and of great common sense. He is standing as a non-party candidate, as an imperialist, and as a medical man. He has defined his position as regards an Irish settlement in the following sensible terms: He will oppose the revival of any controversy as to a settlement being made during the continuance of the war; he will oppose the coercion of any section of the Irish; he will at the termination of the war support a settlement if the Unionists and Nationalists in Ireland have agreed upon one and if Parliament is willing to sanction it. It is, we conceive, the duty of every medical man who has a vote to record it for Sir Robert Woods, and as the election will take place within a very short time it is desirable that those who are acquainted with the present addresses of medical graduates who are serving at the front or elsewhere should, in response to the request of Professors Dixon and Craig, published at page 32, immediately communicate the correct addresses to the Committee Rooms, 24, Trinity College, Dublin.

PARALYSED SOLDIERS AND SAILORS.

At an early stage of the war the British Red Cross Society took up the question of making suitable provision for men paralysed by their wounds. Such men, when discharged from the army, though they may receive the maximum pension, are, in the majority of instances, not in a position to provide themselves with the skilled nursing and special appliances their condition requires, and it seldom happens that their friends are able to make good the deficiency. With the assistance of the Auctioneers' and Estate Agents' Institute the Red Cross was able to acquire and equip the Star and Garter Hostel on Richmond Hill. The accommodation there provided, though considerable, is, owing to the prolongation of the war, inadequate to deal with all of these distressing cases, even were it desirable to assemble all in one place. Most of the men naturally desire to be in some hostel near their own home, where they can easily be visited by their relations and friends. An agreement has now been come to with the military authorities by which the Joint Committee of the British Red Cross Society and the Order of St. John will become responsible for the treatment of all men paralysed as a result of wounds in the war. A letter has been addressed to the local Red Cross Committees in each county, asking them to take steps to provide for men belonging to their own county. Lists have been compiled of paralysed men in various hospitals all over England, showing the county in which each is domiciled, and it is asked that the name of any paralysed man who desires to get into a permanent hostel or hospital near his own home should be sent to Dr. Fox-Symons, at the British Red Cross Society, 83, Pall Mall, London, S.W. On receipt of this communication, which should include particulars relating to the case and full details as to the man's domicile, Dr. Fox-Symons will communicate with the county representative. It is possible that the British Red Cross Society may eventually receive a grant from the Statutory Committee to assist in this work, and such grants would appear to be well within the scope of the purposes to which the funds at the disposal of the committee may be allocated; but in order to prevent delay the society is prepared to bear such expense as may be necessary, at all events for the present. It is hoped, however, that assistance will also be forthcoming from the locality in which the man's home is.

INTRAVENOUS INJECTIONS OF ANTIMONY IN MALARIA.

SINCE 1906, when Nicolle and Mesnil first recommended the use of antimony in trypanosomiasis, this drug has also been used in the treatment of dermal leishmaniasis, ulcerating granuloma, and Mediterranean and Indian kala-azar. To Broden and Rodhain belongs the honour of having first devised the method of giving the salt intravenously, a procedure which got over the difficulty of oral and subcutaneous administrations. The results obtained in the different diseases mentioned have been satisfactory on the whole, but the difficulty of completely eradicating protozoal parasites is well known, and in trypanosomiasis, at any rate, relapses have not been infrequent even after several courses of antimony injections. Great success has followed intravenous injections of tartar emetic in that intractable form of ulceration known as "ulcerating granuloma of the pudenda," and what is known as dermal leishmaniasis in South America has also reacted very favourably. Following up these discoveries many different authors have employed such injections in kala-azar, the results obtained having been much better than by any previous method of treatment. In a paper published in this issue of the JOURNAL Sir Leonard Rogers records a series of interesting observations on cases of malaria treated by tartar emetic injections. In two of these the injections caused crescents to disappear from the peripheral blood, and in another benign tertian gametes disappeared. Should it be proved that injections of tartar emetic will sterilize cases of malaria a great advance will have been made even on the quinine method, but, as Rogers indicates, a good deal more work and the lapse of a longer time will be needed to determine this point. The disappearance of the gametes alone will not, of course, effect a cure, for the active asexual forms must also be acted upon and killed off. New drugs have from time to time been brought forward for the treatment of malaria; in fact, there is a French one on the market now called "diemenal," a solution of colloidal manganese, which is said to cure malaria much more effectually than quinine, and also to prevent relapses. Time alone will show if

such a claim is well founded, and the same must be said of antimony. Rogers's observation is interesting, and may prove to be very important. The results of his own further observations will be awaited with interest, and doubtless the publication of his preliminary note will stimulate others to put this method to the test.

"THE BRITISH JOURNAL OF OPHTHALMOLOGY."

THE first number of the *British Journal of Ophthalmology* (January, 1917) appears with a foreword by "P. S." (Mr. Priestley Smith), who explains, as has already been stated in our columns, that the new periodical has been brought into existence by the union of the *Reports of the Royal London Ophthalmic Hospital*, the *Ophthalmic Review*, and the *Ophthalmoscope*. It was in 1857 that the staff at Moorfields began to issue periodical reports of their clinical and operative experiences and of the researches carried out in the museum and laboratories of the hospital. This publication now fills twenty volumes. The *Ophthalmic Review* first appeared in 1881, and the *Ophthalmoscope* in 1903. Every student of the subject, "P. S." says, knows that all these have played important parts in the progress of ophthalmology, but their work has sometimes overlapped, implying waste of strength, and the present is a moment when all sorts and conditions of men ask themselves how they can better utilize their resources and increase the efficiency of their work. Therefore the promoters of all three periodical publications have been willing to join forces in a more comprehensive enterprise, which is already, we are glad to learn, assured of welcome and support in all parts of the British empire. It is also hoped that the hospitality of its pages will be accepted from time to time by ophthalmic surgeons in Holland, Sweden, and some other countries, whose original work has hitherto been published elsewhere. This expectation may, we trust, be fulfilled, for it is every way desirable that international amenities between our own and the other northern European countries should be encouraged. The new journal is financed by a company which has been formed by British ophthalmic surgeons, and of which Mr. W. H. H. Jessop, President of the Ophthalmological Society of the United Kingdom, is chairman. To him, as the prime mover in the new enterprise, the cordial thanks of all those interested in it are due. "P. S." concludes by an invitation to contributors in which are quoted the words of Sir William Bowman in the first number of the *Moorfields Reports*, when he referred to those "who would fain leave science more advanced than they found it." The editor of the new journal is Mr. Sydney Stephenson, formerly editor of the *Ophthalmoscope*, the sub-editor Mr. Erskine Henderson, and the chairman of the Editorial Committee, with which they act, is Mr. J. B. Lawford. The first paper in the number is the first part of a paper by Mr. Priestley Smith on the blood pressure in the eye and its relation to chamber pressure. There is a paper on choroidal melanomata by Mr. Foster Moore, three papers on the use of magnets for the removal of foreign bodies, some abstracts of papers published elsewhere, a review, and some notes. We wish the new periodical every success.

RENEWAL OF PETROL LICENCES.

THE Petrol Control Committee (19, Berkeley Street, London, W.) has informed the British Medical Association that medical practitioners should observe the following procedure in applying for a renewal of their petrol licences. The form of application, which is to be found on page 7 of the licence, should be filled in, preferably with the name and address written in printed characters, and forwarded together with a remittance covering the duty on the full number of gallons applied for. In cases where a supplementary licence has been issued both forms of application should be forwarded together. Licences do not expire automatically on January 31st, and consequently, if more than one month's allowance is still due under the licence, an application for a renewal of such licence should not be made until a short time (say a fortnight) before it is exhausted, and in any case no application should be made until after the second week in January.

NONAGENARIANS.

WE publish this week obituary notices of two Fellows of the Royal College of Surgeons of England who were nonagenarians. Mr. Richard Barwell, formerly surgeon to Charing Cross Hospital, who was 90 years of age, became a Fellow of the College in 1853. Mr. Buxton Shillitoe, who was long a well-known practitioner in the city of London, had attained the age of 91, but he did not become F.R.C.S. until seven years after Mr. Barwell. The senior Fellow is now Mr. T. Pridgin Teale, F.R.S., of Leeds. He was admitted a Fellow in May, 1857, and as he was born in June, 1831, he is probably not only the senior, but the oldest Fellow. The next name in the chronological list is that of Mr. D. B. Balding, of Royston, chairman of the Council of the Poor Law Medical Officers' Association, and at one time president of the Cambridge and Huntingdonshire Branch of the British Medical Association, and coroner for Hertfordshire. The senior Fellow of the Royal College of Physicians of London is Sir Hermann Weber, and as he was born in 1823 he is probably the oldest Fellow in years. He was elected a Fellow in 1859, the same year as Dr. William Odling, who was for the thirty years preceding his retirement in 1912 Waynflete Professor of Chemistry in the University of Oxford. We do not know who is the oldest member of the British Medical Association, but until a better claim is established we may assign the position to Dr. Horace Dobell, who wrote to us from his retirement at Parkstone Heights, near Bournemouth, on December 30th, to say that he hoped to celebrate his entrance into his 90th year on New Year's Day. We regret to learn that on starting that day for his usual constitutional walk of an hour he was taken suddenly ill, but are glad to learn that he was able to leave his bed two days later.

THE HALF-YEARLY INDEXES FOR 1916.

THE usual half-yearly indexes to the JOURNAL, to the EPITOME, and to the SUPPLEMENT have been prepared and will be printed. They will, however, not be issued with all copies of the JOURNAL. Any member or subscriber who desires to have one or all three of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C. Such copies will be dispatched shortly after the middle of January.

WE regret to have to announce the death, on December 31st, 1916, at the age of 83, of Dr. William Orange, C.B., who was a member of the medical staff of Broadmoor Criminal Lunatic Asylum from the date of its opening in 1862 down to 1886, and was medical superintendent for the last sixteen years of that period.

SIR WILLIAM J. COLLINS, M.D., M.S., has been elected a member of Parliament for Derby without a contest. He represented St. Pancras in the House of Commons from 1906–10. He is senior surgeon to the Royal Eye Hospital, and ophthalmic surgeon to the King George's Hospital, London, and has done much public work, not only in the House of Commons and in the London County Council, of which he was chairman in 1897–98, but in many other directions. He was, for instance, plenipotentiary for Great Britain to the International Opium Conference at the Hague in 1911–12, 1913, and 1914.

THE WAR.

THE FIVE MONTHS' BATTLE OF THE SOMME.

SIR DOUGLAS HAIG'S DISPATCH.

Sir Douglas Haig's dispatch on the operations of the British Expeditionary Force in France from May 19th to December 23rd, falls naturally into four parts. The first deals with the objects of the offensive and the preparations made for it; the other three with its several phases.

The objects were to relieve the pressure on Verdun, to assist our Allies in the other theatres of war by stopping any further transfer of German troops from the Western front, and to wear down the strength of the forces of the enemy. In spite of the fact that the heavy autumn rains, at a time when there were good grounds for hoping to achieve yet more important successes, prevented full advantage being taken of the favourable situation created by the beginning of October, these three main objects had been attained when active operations ceased in November: Verdun had been relieved; the main German forces had been held on the Western front, so that in November the strength of the enemy there was greater than in July, and the enemy's strength had been very considerably worn down.

Preparation.

A period of preparation was needed in the first place for increasing the size of the British Army, for the further training of officers and men on the spot, and for increasing the supplies of ammunition, but it was necessary also in order to accumulate stores at a convenient distance from the front, to organize means of communication and to dig communication trenches. Many miles of new railways, both standard and narrow gauge, and trench tramways were laid; roads were improved and new ones made, and long causeways built over marshy valleys; dug-outs were provided as shelters for the troops, for use as dressing stations for the wounded, and as magazines for storing ammunition and food.

Except in the river valleys the existing supplies of water were hopelessly insufficient to meet the requirements of the numbers of men and horses to be concentrated in the area as the preparations for the offensive proceeded, and it became necessary to sink wells and borings, and to install over one hundred pumping plants; more than 120 miles of pumping mains were laid and every preparation made to ensure an adequate water supply to the troops. The work had to be done under very trying conditions, the weather was bad, the local accommodation totally insufficient for housing the troops, who had to content themselves with such rough shelters as could be provided in the circumstances, and all work was liable to constant interruption from the enemy's fire, and also by attacks in force made on the Vimy Ridge on May 21st and in the neighbourhood of Hooge on June 2nd, the latter necessitating a counter-attack on June 13th, which was successfully accomplished by the troops on the spot.

The first phase of the offensive began on July 1st after an artillery bombardment which commenced on June 24th; during the same period gas was discharged with good effect in more than forty places along our lines, on a frontage which in total amounted to over fifteen miles. The first phase ended on July 14th, when a night attack was delivered on a wide front, and that it was a complete success was the highest possible tribute to the quality of the troops and to their discipline and spirit.

Then followed a phase of slow and methodical progression with almost continuous fighting, ending in the great attack on September 15th, when the "Tanks" were brought into action for the first time. The next large attack was launched on November 13th, and brought the British line to the advanced position in which it now stands. Both these operations, it is said, were carried out without great cost in casualties.

The Medical Arrangements.

The dispatch contains no direct statement as to the number of our casualties, but it is, of course, known that they were large and put the medical arrangements to a severe test. On this point the dispatch contains the following paragraph:

"The losses entailed by the constant fighting threw a specially heavy strain on the medical services. This has been met with the greatest zeal and efficiency. The gallantry and devotion with which officers and men of the regimental medical service and field ambulances have discharged their duties is shown by the large number of the R.A.M.C. and medical corps of the Dominions who have fallen in the field. The work of the medical services behind the front has been no less arduous. The untiring professional zeal and marked ability of the surgical specialists and consulting surgeons, combined with the skill and devotion of the medical and nursing staffs, both at the casualty clearing stations in the field and the stationary and general hospitals at the base, have been beyond praise. In this respect also the Director-General has on many occasions expressed to me the immense help the British Red Cross Society has been to him in assisting the R.A.M.C. in their work.

"The health of the troops has been most satisfactory, and during the period to which this dispatch refers there has been an almost complete absence of wastage due to disease of a preventable nature."

All the arrangements were, we know, very carefully thought out before the advance on July 1st and modified as circumstances required, casualty clearing stations being moved up as necessary. In this connexion we may refer to the great value of the telephone system which the Signal Service organized. Through it, supplemented where necessary by the motor cycle dispatch riders, it has been possible to keep the most advanced units of the medical service in touch with all others down to and beyond the casualty clearing stations.

Employment of Gas.

On the use of gas the dispatch contains the following paragraph:

> The employment by the enemy of gas and of liquid flame as weapons of offence compelled us not only to discover ways to protect our troops from their effects, but also to devise means to make use of the same instruments of destruction. Great fertility of invention has been shown, and very great credit is due to the special personnel employed for the rapidity and success with which these new arms have been developed and perfected, and for the very great devotion to duty they have displayed in a difficult and dangerous service. The army owes its thanks to the chemists, physiologists, and physicists of the highest rank who devoted their energies to enabling us to surpass the enemy in the use of a means of warfare which took the civilized world by surprise.
>
> Our own experience of the numerous experiments and trials necessary before gas and flame could be used, of the great preparations which had to be made for their manufacture, and of the special training required for the personnel employed, shows that the employment of such methods by the Germans was not the result of a desperate decision, but had been prepared for deliberately.

Since we have been compelled, in self-defence, to use similar methods, it is satisfactory to be able to record, on the evidence of prisoners, of documents captured, and of our own observation, that the enemy has suffered heavy casualties from our gas attacks, while the means of protection adopted by us have proved thoroughly effective.

Mentions.

In the *Gazette* of January 2nd a further dispatch is published from Sir Douglas Haig submitting the names of officers, ladies, non-commissioned officers and men serving, or who have served under his command, whose distinguished and gallant services and devotion to duty he considers deserving of special mention. The list is very long and we are unable to deal with it in this issue.

A MEDICAL MEETING AT KUT-EL-AMARA.

We have received from Major C. H. Barber, I.M.S., a report of a meeting which the medical officers of the Kut garrison, taking advantage of the unusual opportunity afforded them by the siege, held on April 1st, 1916—that is, in the fifth month of the siege. Demonstrations on cases of beri-beri by Captain Cane, R.A.M.C., on scurvy by Captain Clifford, I.M.S., and on gunshot wounds of the abdomen by Major Barber, I.M.S., were given. The meeting had been twice postponed, and even on the day it was held the weather was unfortunately bad

enough to prevent several officers from attending, but the following were present:

*Colonel Patrick Hehir, C.B., I.M.S., A.D.M.S., 6th Division.
*Lieutenant-Colonel Browne-Mason, R.A.M.C., D.S.O.
Major W. M. Pearson, I.M.S.
*Major E. V. Aylen, R.A.M.C., D.S.O.
*Major C. H. Barber, I.M.S.
Captain D. Arthur, I.M.S.
*Captain H. H. King, I.M.S.
Captain E. G. S. Cane, R.A.M.C.
*Capta n W. L. Fretz, R.A.M.C.
Captain T. E. Osmond, R.A.M.C.
Captain R. C. Clifford, I.M.S.
Captain M. L. Puri, I.M.S.
Captain L. A. P. Anderson, I.M.S.
Captain C. Newcomb, I.M.S.
Captain J. Murphy, R.A.M.C., D.S.O.
Lieutenant W. C. Spackman, I.M.S.
Lieutenant P. O'Donoghue, I.S.M.D.
Assistant Surgeon Fratel, I.S.M.D.
Assistant Surgeon Aquino, I.S.M.D.
Assistant Surgeon de Souza, I.S.M.D.
Assistant Surgeon A. J. Hixon, I.S.M.D.
Subassistant Surgeon Subadar Thakur Das.
Subassistant Surgeon Abdul Quaium
Subassistant Surgeon Gurdayal Singh.
Subassistant Surgeon Waryam Singh.

* The officers with an asterisk against their names have since been exchanged and have returned to India or England.

Beri-beri.

Starting at the British General Hospital, a series of twenty-six cases of beri-beri were shown by Captain E. G. S. Cane, who pointed out the signs and symptoms of the disease.

Case 1, now convalescent, showed only muscular atrophy and absence of knee-jerks, but had previously suffered from oedema of legs, abdomen, and lungs, cardiac dilatation, and tachycardia.

Case 2 now showed tachycardia only.

Case 3 was an example of great emaciation—a 13 st. man reduced to 8 st. He had previously suffered from paralysis of both arms. He now felt quite well, but was not able to walk. He ate everything he could get of meat, rice, and bread, but did not put on weight.

Case 4 had loss of tactile sensation in the legs from just above the knees downwards.

Case 5 at one time had become suddenly unconscious and had remained so for three days, with no after-effects.

In *Cases 6 and 7* there was abdominal distension, now without ascites. The distension varied with the time of day, generally being worse at night.

Cases 8 and 9 showed great emaciation.

Captain Cane said that unfortunately for purposes of demonstration only the chronic cases were left, all the slighter cases—some sixty in all—having been discharged. Of these only two had returned to hospital. In answer to questions, he said that the men usually came in complaining of swelling in the legs, inability to walk in consequence, and palpitation. The pain was in the calf, in the shin bone, and especially just behind and above the knee. The earliest signs were usually tenderness in the calf, oedema of the legs and loss of knee-jerks, and tachycardia; there were no heart murmurs, but oedema and distension of the abdomen with occasional ascites, and slight oedema of the face; sometimes, not often, areas of anaesthesia occurred on any part of the lower extremities, not confined to any particular nerve areas. Paralysis of the arms was occasional but rare; anaemia was a constant feature. Later on the oedema of the legs went down and wasting was ushered in. Wounds in beri-beri cases, several of which had occurred in hospital, healed very slowly, the granulation process in soiled and open wounds being especially dilatory.

In fatal cases death was usually due to heart failure in the early days of and before the siege, but, later on, uncontrollable dysentery was the determining factor. Two nursing orderlies who were looking after cases of the latter kind contracted the disease, but it was possible that they were already previously affected. Progress was on the whole very good. As regards treatment, no drug appeared to be of much use. Tonics of various sorts were given. Early in the siege the white bread of the ration was replaced by brown and much improvement in the beri-beri cases followed this change.

Wounds of the Abdomen.

The meeting then adjourned to the Indian General Hospital, where Major Barber, I.M.S., showed a number of abdominal cases, a few amputations, and other cases. The abdominal cases were all due to penetrating or perforating gunshot wounds of the abdomen involving the peritoneal cavity and its contents, and had all, with one exception, been operated on by laparotomy successfully. With the exception of one case, in which the liver alone had been injured, all had sustained very extensive damage to the intestines, both the large and the small; the holes and rents therein had been stitched up and the peritoneal cavity cleaned and drained. The liver case referred to was one in which a bullet had gone through the right pleura near the costal margin, smashing a rib and tearing the right lobe of the liver, leaving a gaping rent 3½ to 4 in. in length. This was closed by deep catgut sutures and the peritoneal cavity cleaned of blood; no injury to the gut could be found. Major Barber said that he exhibited these cases in order to show that operation by laparotomy for perforating wounds of the abdomen was not only not hopeless but imperative in every possible case where the general condition of the patient was good enough, and where there seemed no doubt that the hollow viscera were injured. Out of some 80 cases of which he had notes he had now operated on 33, of whom 10 had recovered, whilst of the remaining 47 only 1 had survived—the case now shown. During the later half of the siege the recuperative power of the men had seriously deteriorated, or the figures would no doubt have been better, but they were sufficient to indicate the value of operation.

The earlier the case was got the better the prognosis, and it was doubtful if, as a rule, operation was worth while if over fifteen hours had elapsed before the case arrived in hospital, since after that time severe peritonitis had set in.

The most serious complication was haemorrhage, which accounted for a large percentage of the deaths before operation was possible, or so reduced the resistance of the patient to the shock of the injury as either to contra-indicate operation or seriously to jeopardize his chances of recovery after operation. The extent of the damage to the gut varied enormously from two or three holes to fifteen or sixteen, any or several of which might take the form of large longitudinal rents, or of groups of holes close together, for which resection was the only remedy. In only one case had he found any holes to be so small as to suggest the possibility of their being occluded by natural processes, and in this case they were not the only lesion. Bleeding was nearly always severe, and came either from mesenteric vessels or from the torn gut walls, whilst intestinal contents often exuded in large quantity.

The above remarks, Major Barber said, were especially applicable to cases of wounds below the transpyloric plane. Wounds above that plane were not necessarily so serious, and might sometimes be left alone, since a drilled hole through the liver often healed up quickly, and the stomach above the plane presented a single viscus with its two walls closely applied to solid structures; natural occlusion of two small holes might here take place fairly easily. He then showed several examples of wounds which narrowly missed the peritoneal cavity, and said that sometimes it was very difficult to decide whether it was affected or not, knowledge of anatomical relations and levels being severely tested. He was of opinion that these penetrating wounds of the belly should be treated as acute abdominal cases, and be operated on at once in field ambulances if these were stationary for long enough, as frequently happened. No special instruments or apparatus, beyond those supplied to hospitals, were absolutely necessary, and the chance of these cases reaching a base hospital in time in Mesopotamia was very remote.

A very interesting case of arterio-venous aneurysm diminishing under pressure was then shown, and also an extradural abscess case, occurring two and a half months subsequent to a scalp wound.

Scurvy.

Proceeding to the 57th Stationary Hospital, members were shown some cases illustrating the classical signs of scurvy by Captain Clifford, I.M.S.

The first case was one showing the extent to which the gums may be involved without the occurrence of any suppuration. The whole of the gums of the lower jaw were puffy and inflamed; the papillae stood out from the teeth, and the mucous membrane of both cheeks and palate was oedematous. The case was one of six weeks' standing and had previously suffered from infiltration of the thigh muscles. This had resolved, and there was

now extreme emaciation of the lower extremities. The next case was one with little or no mouth signs, but with marked oedema of the feet and induration of the calf and flexor thigh muscles. When made to stand up he could only attain to a bent-kneed crouching attitude, but complete flexion was easy and painless. The next case illustrated one of the commonest sites of the vicarious haemorrhages met with in this disease. The patient's right eye showed a subconjunctival haemorrhage of some extent. It was limited on the inner side by the corneo-scleral junction, but on the outer the effusion was diffuse and passed to the back of the eye above. No permanent harm had resulted from these haemorrhages; there had been only very temporary diminution of vision and no pain, but there was still some photophobia present after three weeks. A fourth case was again an example of an effusion of blood. The man had a hard, tumour-like swelling in the region of the gall bladder. When admitted three weeks earlier the swelling was more diffuse and less indurated, and appeared to be situated in the subperitoneal tissue. The patient at first had suffered some pain, but this soon passed off; there were other undoubted signs of scurvy present.

The next two cases illustrated the adverse effect of scurvy on wounds. The first was a gunshot wound of the hand with compound fracture of the bones. Instead of healing up, the wound had deteriorated, and become full of thick grey pus, which on being washed away left an unhealthy-looking grey surface, covered with pin-point haemorrhages, and dark plugs of blood-clot were seen scattered over the surface, closing bleeding capillaries. The wound was three months old, and refused to heal, although all dead bone had been removed. There was no surrounding induration, and the edges of the wound were thin and undermined. The second case showed a large wound over the glenoid cavity of the scapula. The arm had been removed two months previously on account of extensive bone injury and continued suppuration. Scurvy had attacked the patient twelve days after the amputation, and the wound at once began to bleed from numerous points on the already granulating area. The progress of the case was checked, and, on account of the abundance of pus, fomentations had once more to be applied to the wound. The scurvy was being checked by giving the patient tinned pineapple, which, Captain Clifford said, caused a very remarkable improvement in these cases. The granulations now looked fairly healthy, though they bled extremely easily: there was no induration around the wound, such as would have been found in an otherwise healthy person with a chronic granulating ulcer.

This concluded the demonstrations, and brought to an end a meeting which will live long in the memory of those who attended it. The downpour of rain damped the spirits of the Turks and gave us a quiet afternoon, so that we were all able to forget for a short time that we were a beleaguered garrison.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Drowned.

Surgeon Probationer W. S. Allardice, R.N.V.R.

Surgeon Probationer William S. Allardice, R.N.V.R., was reported in the casualty list published on December 30th, 1916, as having been drowned on service.

ARMY.

Killed in Action.

Major P. A. Lloyd-Jones, D.S.O., R.A.M.C.

Major Percy Arnould Lloyd-Jones, D.S.O., R.A.M.C., was killed in action on December 22nd, 1916, aged 40. He was the son of Mr. E. Lloyd-Jones of Abbotshill, Malvern, Worcestershire. He graduated B.A.Camb. with honours in 1898, and M.B. and B.C. in 1907. He was a student at St. Bartholomew's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1904. After acting as house-surgeon of Bedford County Hospital he entered the R.A.M.C. as lieutenant on July 30th, 1904, becoming captain on January 30th, 1908, and major on July 1st, 1915. In the South African war he served in the ranks for over a year, gaining the Queen's medal with three clasps; he received the order of the Crown of Italy and the Commemoration Medal for services in the Messina earthquake; and in the present war had commanded a field ambulance with the temporary rank of lieutenant-colonel, had been mentioned in dispatches, and received the D.S.O. on June 23rd, 1915.

Died of Wounds.

Captain R. F. Hughes, A.A.M.C.

Captain Rogers Forrest Hughes, whose death from wounds we recorded last week, was born on May 6th, 1890, and was the elder son of Sir Thomas Hughes, for many years Lord Mayor of Sydney. He was educated at St. Ignatius College, Riverview, Sydney, and entered the Sydney University, where he graduated B.A., M.B., C.M. at the end of 1915. He represented his school at cricket and football and his university at hockey. He relinquished the post of resident medical officer at St. Vincent's Hospital in March, 1916, to enlist with the Australian Army Medical Corps, and after serving with a military base hospital left for service abroad in August. Just before leaving Australia he married Eileen, the youngest daughter of Mr. and Mrs. Maher, of Collaroy Station, Merriwa, N.S.W. He arrived in France on December 1st, and was detailed as regimental medical officer to an Australian battalion. It was while attending to a wounded man in the dressing station on December 11th that he was severely wounded; he died the same day.

Lieutenant E. Howe, R.A.M.C.

Lieutenant Ernest Howe, R.A.M.C., whose death was reported last week, died of wounds on December 14th, 1916, aged 30. He was born at Dove Holes, Buxton, educated at the Victoria University, Manchester, where he graduated M.B. and Ch.B. in 1909, and, after acting as house-physician of Manchester Royal Infirmary, went into practice at Hazel Grove, near Stockport. He had only recently taken a temporary commission in the R.A.M.C., and went to the front in October, 1916.

Wounded.

Captain M. H. Barton, R.A.M.C.(T.F.).

Lieutenant T. H. Drake, R.A.M.C. (temporary).

Deaths among Sons of Medical Men.

Atkinson, Noël Mitford Henson, Second Lieutenant East Lancashire Regiment, attached Royal Flying Corps, younger son of Dr. and Mrs. T. Reuell Atkinson, of Chadwell Heath, Essex, killed December 27th, 1916, aged 25 years. He was educated at Chigwell School, getting his colours for cricket and football, and winning many prizes for swimming. He was a colour-sergeant in the school O.T.C. He matriculated at the London University, and entered Guy's Hospital, but, not finding hospital life congenial, he left the hospital at the end of a year and entered the Insurance Company of Canton, and from that transferred to the Hong Kong and Shanghai Banking Corporation. On the outbreak of war he enlisted in the U.P.S. Battalion, Royal Fusiliers, spent all last winter in the trenches, rose to the rank of sergeant, and was sent home, in the spring of 1916, for a commission. After some months at Balliol College, Oxford, he was gazetted to the East Lancashire Regiment. His elder brother Guy, a second lieutenant in the same regiment, died on October 30th, 1916, from wounds received on October 24th, 1916.

Hincks, Bertram, Second Lieutenant King's Royal Rifle Corps, youngest son of Dr. T. S. H. Hincks, of Hay, Hereford, killed on December 18th, 1916, aged 24. He was educated at Christ's College, Brean, and was farming in Canada till the beginning of the war, when he enlisted in the Canadian Scottish, and came to England with the first Canadian contingent. He went to France early in 1915, and took part in the second battle of Ypres, and in the battle of Festubert. He then received a commission in the K.R.R.C., and after a period of training in England, returned to the front last September. He was killed instantaneously by a sniper.

Hobart, Frederick Audrey, Private, Argyll and Sutherland Highlanders, youngest son of the late Dr. N. T. Hobart, of Cork, killed December 12th, 1916, aged 35.

Massy, George Dunham, London Regiment, elder son of the late Lieutenant-Colonel George Massy, I.M.S., killed on December 15th, 1916, aged 36.

Rendall, Frank, Corporal the Buffs, East Kent Regiment, second son of Dr. Rendall, late of Maiden Newton, Dorset, killed November 18th.

Underhill, Reginald, Lieutenant Duke of Cambridge's Own Middlesex Regiment, eldest son of Dr. F. T. Underhill, medical officer of health, Vancouver, British Columbia, killed November 18th, 1916. For nine years he had been a sergeant in the 6th Duke of Connaught's Own Rifles, Vancouver. He enlisted on August 4th, 1914, came to England as a sergeant in the 7th Battalion, 1st Canadian Division, and was given a commission in the Middlesex Regiment on December 22nd, 1914. He had served for eighteen months at the front when he was wounded last March, and returned to the front in July. He had three brothers serving, one of whom was killed last March.

HONOURS.

A SPECIAL supplement to the *London Gazette* issued on January 1st contains long lists of honours and promotions. The following medical officers are among the recipients. The *Gazette* does not specify how many belong to the Territorial Force, but we have inserted, so far as the information at our disposal permits, an indication in the case of officers receiving the D.S.O. and the Military Cross, who number eighteen and fourteen repectively.

To be K.C.B.

Surgeon-General Hayward Reader Whitehead, C.B., F.R.C.S.

To be C.B.

Colonel (temporary Surgeon-General) James Murray Irwin, M.B., late R.A.M.C.
Inspector-General John Cassilis Birkmyre Maclean, M.B., R.N.(ret.).
Colonel Robert Lockhart Ross Macleod, M.B., A.M.S.
Colonel Gerald Cree, C.M.G., A.M.S.
Colonel Alexander Arthur Sutton, D.S.O., A.M.S.
Colonel George Henry Barefoot, C.M.G., R.A.M.C.
Temporary Colonel Thomas Sinclair, M.D., F.R.C.S., A.M.S.
Lieutenant-Colonel Edwin Thomas Fairweather Birrell, C.M.G., M.B., R.A.M.C.
Colonel Herbert Stanley Birkett, C.A.M.C.
Colonel James Alexander Roberts, C.A.M.C.

To be K.C.M.G.

Surgeon-General Richard William Ford, C.B., D.S.O.
Colonel Maurice Percy Cue Holt, C.B., D.S.O., A.M.S.

To be C.M.G.

Colonel Thomas Daly, R.A.M.C.
Colonel William Lewis Gray, M.B., R.A.M.C.
Colonel Foster Renss Newland, M.B., A.M.S.
Colonel Henry Thomas Knaggs, M.B., A.M.S.
Colonel Herbert Innes Pocock, R.A.M.C.
Colonel Bertal Hopton Scott, R.A.M.C.
Colonel Robert Wallace Wright, M.B., R.A.M.C.
Colonel Thomas Du Bedat Whaite, M.B., R.A.M.C.
Colonel Frederick James Morgan, A.M.S.
Temporary Colonel Thomas Crisp English, M.B., F.R.C.S., A.M.S.
Lieutenant-Colonel Arthur Russell Aldridge, C.S.I., M.B., R. of O., R.A.M.C.
Lieutenant-Colonel (temporary Colonel) John David Ferguson, D.S.O., R.A.M.C.
Lieutenant-Colonel Samuel Henry Withers, M.B., R.A.M.C.
Lieutenant-Colonel (temporary Colonel) Ferberd Richard Buswell, R.A.M.C.
Lieutenant-Colonel Lionel Fergus Smith, M.B., R.A.M.C.
Lieutenant-Colonel (temporary Colonel) Frank Albert Symons, D.S.O., M.B., R.A.M.C.
Temporary Lieutenant-Colonel Gordon Morgan Holmes, M.D., R.A.M.C.
Temporary Lieutenant-Colonel Herbert Lightfoot Eason, M.D., R.A.M.C.
Lieutenant-Colonel Alfred Sutton, A.A.M.S.
Lieutenant-Colonel Edward Charles Hart, C.A.M.C.

To be C.I.E.

Lieutenant-Colonel James Graham Hojel, M.B., I.M.S., Officer Commanding Lady Hardinge War Hospital, Bombay.
Morris Y. Young, M.B., Medical Officer at the Oil Fields, Persian Gulf.

To be Companion of the D.S.O. in Recognition of Services in the Battle of Jutland.

Fleet Surgeon Ernest Alfred Penfold, M.B., R.N.

Was in the fore medical distributing station when a heavy shell burst just outside, killing and wounding many. He was knocked down, bruised, and shaken, but personally assisted in the removal of the wounded and tended them with unremitting skill and devotion for forty hours without rest. His example was invaluable in keeping up the morale of the wounded and of the medical party under very trying conditions, the shell having destroyed instruments, dressings, etc.

Awarded the Distinguished Service Cross.

Surgeon Hother McCormack Hanschell, R.N.

In recognition of his services with the Tanganyika Flotilla. The comparative immunity from sickness enjoyed by the members of the expedition was due to the unremitting care bestowed by Surgeon Hanschell on the health of the personnel and on the sanitary state of the camps and vessels.

Noted for Accelerated Promotion.

Fleet Surgeon Alfred James Hewitt, R.N., who has been mentioned in dispatches, has been noted for accelerated promotion in recognition of the conspicuous gallantry and very exceptional professional ability which he displayed as medical officer of H.M.S. *Pegasus* when that ship was sunk by the *Königsberg* in September, 1914.

To be Brevet Colonels.

Lieutenant-Colonel H. H. Norman, M.B., R.A.M.C.

To be Brevet Lieutenant-Colonels.

Major G. Ormrod, M.B., R.A.M.C.
Major (temporary Lieutenant-Colonel) E. Ryan, D.S.O., R.A.M.C.

Awarded the D.S.O.

Captain Robert George Archibald, M.B., R.A.M.C., employed Egyptian army.
Captain Frank Rhodes Armitage, M.B., R.A.M.C.(T.F.)
Lieutenant-Colonel Marcus Hill Babington, R.A.M.C.
Captain (temporary Major) Winfred Kelsey Beaman, R.A.M.C.
Captain Frederick Arnot Bearn, M.C., M.B., R.A.M.C.(S.R.).
Major (temporary Lieutenant-Colonel) William Bennett, M.B., R.A.M.C.
Lieutenant-Colonel William Arthur Benson, R.A.M.C.(T.F.)
Captain (temporary Major) Reginald Ernest Bickerton, M.B., R.A.M.C.(T.F.)
Major (temporary Lieutenant-Colonel) Elliot Beverly Bird, R.A.M.C.(T.F.)
Major Robert Barclay Black, M.B., R. of O., R.A.M.C.
Lieutenant-Colonel (temporary Colonel) Robert James Blackham, C.I.E., F.F.P.S., R.A.M.C.
Lieutenant-Colonel (temporary Colonel) Ernest William Bliss, R.A.M.C.
Major (temporary Lieutenant-Colonel) John Handfield Brunskill, M.B., R.A.M.C.
Major (temporary Lieutenant-Colonel) Ronald Anderson Bryden, R.A.M.C.
Captain Hector Mackay Calder, M.B., R.A.M.C.(T.F.)
Lieutenant-Colonel Frederick Fitzgerald Carroll, M.B., R.A.M.C.
Lieutenant-Colonel Robert William Clements, M.B., R.A.M.C.
Lieutenant-Colonel Harold Collinson, M.B., F.R.C.S., R.A.M.C.(T.F.)
Major John Marcus Hobson Conway, F.R.C.S.I., R.A.M.C.
Captain Myer Coplans, M.D., R.A.M.C.(T.F.)
Major (temporary Lieutenant-Colonel) Hugh Allan Davidson, M.B., R.A.M.C.
Captain David Dickie, F.R.C.S., R.A.M.C.(T.F.)
Captain (temporary Major) Gilbert Henry Dive, R.A.M.C.
Lieutenant-Colonel (temporary Colonel) Henry Mason Dunn, M.B., R.A.M.C.
Captain (temporary Major) Georgie Bennick Edwards, R.A.M.C.
Lieutenant-Colonel Otto William Alexander Elsner, R.A.M.C.
Major Henry Horace Andrews Emerson, M.B., R.A.M.C.
Major and Brevet Lieutenant-Colonel (temporary Lieutenant-Colonel) FitzGerald Gabbett FitzGerald, R.A.M.C.
Major (temporary Lieutenant-Colonel) William Richard Power Goodwin, R.A.M.C.
Major William Haig, R.A.M.C.(T.F.)
Major (temporary Lieutenant-Colonel) Thomas Ernest Harty, R.A.M.C.
Major (temporary Lieutenant-Colonel) Wm. John Saundry Harvey, R.A.M.C.
Lieutenant-Colonel Frank Hawthorn, M.D., R.A.M.C.(T.F.)
Lieutenant-Colonel Henry Hewetson, R.A.M.C.
Lieutenant-Colonel Henry Charles Rupert Hime, M.B., R.A.M.C.
Major (temporary Lieutenant-Colonel) Andrew Edward Hodder, M.B., R.A.M.C.(T.F.)
Major (temporary Lieutenant-Colonel) Charles Walter Holden, R.A.M.C.
Captain Frederick Duke Gwynne Howell, M.C., R.A.M.C.
Lieutenant-Colonel Wilfrid Edward Hudlestone, R.A.M.C.
Major (temporary Lieutenant-Colonel) Dermot Owen Hyde, M.B., R.A.M.C.
Major Osburne Ievers, M.B., R.A.M.C.
Lieutenant-Colonel Edgar Thomas Inkson, V.C., R.A.M.C.
Major John Tyrer Johnson, M.B., R.A.M.C.
Major (temporary Lieutenant-Colonel) Harry Beatty Kelly, M.B., R.A.M.C.
Lieutenant-Colonel James William Langstaff, R.A.M.C.
Temporary Major (temporary Lieutenant-Colonel) Charles Edward Ligertwood, M.D., R.A.M.C.
Major (temporary Lieutenant-Colonel) Edmond McDonnell, M.B., R.A.M.C.
Captain (temporary Major) Donald Francis Mackenzie, M.B., R.A.M.C.
Major (temporary Lieutenant-Colonel) James Mackinnon, R.A.M.C.(T.F.)
Lieutenant-Colonel Cecil Wilmot Mainpraise, R.A.M.C.
Temporary Captain John Dodds Marshall, M.B., R.A.M.C.
Major John St. Aubyn Maughan, R.A.M.C.
Major Cecil Roy Millar, R.A.M.C.
Temporary Captain Robert Molyneux Miller, R.A.M.C.
Lieutenant-Colonel Edward Maudsley Morphew, R.A.M.C.
Major Santiago Luis-Pallant, R.A.M.C.
Temporary Captain William Newton Parker, M.D., R.A.M.C.
Captain (temporary Major) Thomas Henry Peyton, R.A.M.C.(T.F.)
Lieutenant-Colonel (temporary Colonel) Charles Edward Pollock, R.A.M.C.
Lieutenant-Colonel (temporary Colonel) Charles William Profeit, M.B., A.M.S.
Lieutenant-Colonel (temporary Colonel) Harold Vernon Prynne, F.R.C.S., R.A.M.C.
Captain (temporary Major) William Brooke Purdon, M.C., M.B., R.A.M.C.
Major Lydmar Moline Purser, M.B., R.A.M.C.
Lieutenant-Colonel Wilson Ranson, F.R.C.S., R.A.M.C.(T.F.)
Major (temporary Lieutenant-Colonel) Matthew Burrow Ray, R.A.M.C.(T.F.)
Major (temporary Lieutenant-Colonel) Theodore Francis Ritchie, M.B., R.A.M.C.
Lieutenant-Colonel Horace Samson Roch, R.A.M.C.

Major (temporary Lieutenant-Colonel) Alexander Macgregor Rose, M.B., R.A.M.C.
Lieutenant (T.) (temporary Colonel) Percy William George Sargent, M.B., F.R.C.S., A.M.S.
Temporary Captain Ernest Scott, M.B., R.A.M.C.
Lieutenant-Colonel (temporary Colonel) Daniel David Shanahan, R.A.M.C.
Lieutenant-Colonel (temporary Colonel) John Payzant Silver, M.B., R.A.M.C.
Staff Surgeon Charles Edward Cortis Stanford, M.B., Royal Navy, R.N. Div.
Major John Orlando Summerhayes, R.A.M.C.(T.F.)
Lieutenant-Colonel Albert George Thompson, M.B., R.A.M.C.
Major Charles Glendenning Thomson, R.A.M.C.
Major Lionel Victor Thurston, R.A.M.C.
Lieutenant-Colonel Andrew Alexander Watson, R.A.M.C. (T.F.)
Lieutenant-Colonel (temporary Colonel) Brian Watts, R.A.M.C.
Captain (temporary Lieutenant-Colonel) George Thomas Willan, H.C. Field Ambulance, R.A.M.C.
Major (temporary Lieutenant-Colonel) Maurice Guy Winder, R.A.M.C.
Major (temporary Lieutenant-Colonel) Basil Fenton Wingate, R.A.M.C.
Major Richard Nason Woodley, R.A.M.C.
Captain (temporary Major) William Gordon Wright, R.A.M.C.
Temporary Captain William Allan Young, M.B., R.A.M.C.

Lieutenant-Colonel George Walter Barber, A.A.M.C.
Major Joseph Espie Dods, M.C., A.A.M.C.
Major Henry Kenneth Fry, A.A.M.C.
Lieutenant-Colonel (temporary Colonel) Charles Henry William Hardy, V.D., A.A.M.C.
Major Alexander Hammett Marks, A.A.M.C.
Lieutenant-Colonel John Hare Phipps, A.A.M.C.
Lieutenant-Colonel Thomas Gordon Ross, A.A.M.C.
Lieutenant-Colonel Charles Gordon Shaw, A.A.M.C.
Lieutenant-Colonel John Basil St. Vincent Welch, A.A.M.C.

Temporary Colonel Arthur Evans Snell, C.A.M.C.
Lieutenant-Colonel William Webster, C.A.M.C.
Lieutenant Colonel Robert Percy Wright, C.A.M.C.

Lieutenant-Colonel Donald Norman Watson Murray, N.Z.M.C.

Temporary Major Michael Stanislaus Power, S.A.M.C.

Awarded the Military Cross.

Temporary Captain William Ainslie, M.D., F.R.C.S., R.A.M.C.
Temporary Captain Delvine Bell, M.B., R.A.M.C.
Temporary Captain Francis Gordon Bell, M.D., F.R.C.S., R.A.M.C.
Temporary Captain John Francis Bourke, R.A.M.C.
Temporary Captain Hedley Boyers, M.B., R.A.M.C.
Captain Robert Burgess, R.A.M.C.(T.F.)
Temporary Captain George Beatty Burwell, M.B., R.A.M.C.
Captain Francis Samuel Carson, R.A.M.C.(T.F.)
Captain Colin Cassidy, M.B., R.A.M.C., employed Egyptian Army.
Temporary Captain Alexander Bruce Cheves, M.B., R.A.M.C.
Captain Alfred Joseph Clark, R.A.M.C.(S.R.).
Captain Thomas Courtenay Clarke, R.A.M.C.(T.F.)
Captain Hugh Gregan Crawford, R.A.M.C.(S.R.).
Temporary Captain Douglas Edward Crosbie, R.A.M.C.
Captain Arthur Gordon Cummins, M.B., R.A.M.C., employed Egyptian Army.
Temporary Captain William Edgsworth David, M.B., R.A.M.C.
Captain Duncan Davidson, M.B., R.A.M.C.(T.F.)
Captain Daniel Dougal, R.A.M.C.(S.R.).
Captain Thomas Ingram Dun, M.B., R.A.M.C.(S.R.).
Temporary Captain John Leeper Dunlop, M.B., R.A.M.C.
Captain Charles Derwent Edwards, M.D., R.A.M.C.(T.F.)
Temporary Captain Evan Evans, R.A.M.C.
Captain Thomas Gordon Fleming, M.B., R.A.M.C.(S.R.).
Temporary Captain Carleton Yates Ford, M.D., R.A.M.C.
Temporary Captain Donald Thomas Fraser, M.B., R.A.M.C.
Captain John Fraser, M.B., R.A.M.C.(S.R.).
Temporary Captain Archibald Fullerton, M.B., R.A.M.C.
Captain William Rickards Galwey, M.B., R.A.M.C.
Captain John Galbraith Gill, M.B., R.A.M.C.
Temporary Captain David Hamilton Hadden, M.B.
Captain George Harris Haines, R.A.M.C.(S.R.).
Temporary Captain Harold Parrish Hamilton, M.B., R.A.M.C.
Temporary Captain George Francis Hardy, R.A.M.C.
Captain William Theodore Hare, R.A.M.C.(S.R.).
Captain William Clavering Hartgill, R.A.M.C.(S.R.).
Captain Robert Lance Impey, M.B., R.A.M.C.(S.R.).
Captain George Gordon Johnstone, M.B., R.A.M.C.(T.F.)
Captain Thomas James Kelly, M.B., R.A.M.C.(S.R.).
Temporary Captain Maurice Baylis King, M.B., R.A.M.C.
Captain Gerald Quin Lennane, F.R.C.S.I., R.A.M.C.(T.F.)
Temporary Lieutenant James William Littlejohn, M.D., R.A.M.C.
Temporary Captain Ambrose Lorne Lockwood, M.D., R.A.M.C.
Captain William Ernest Craven Lunn, M.B., R.A.M.C.
Temporary Captain Eric Lofts Mackenzie, M.B., R.A.M.C.
Temporary Captain William Macleod, R.A.M.C.
Temporary Captain Alfred Malseed, M.B., R.A.M.C.
Temporary Captain John Cuthbert Matthews, M.B., R.A.M.C.
Captain (temporary Lieutenant-Colonel) Godfrey Kindersley Maurice, R.A.M.C.(T.F.)
Temporary Captain George Robert Denison McGeagh, R.A.M.C.
Temporary Captain Adam Fisher Menzies, R.A.M.C.
Temporary Captain Kenneth Earl Millan, M.B., R.A.M.C.
Temporary Captain Francis John Morris, R.A.M.C.
Captain Gerald Thomas Mullally, M.B., F.R.C.S., R.A.M.C. (S.R.)
Captain Frederick John James Ney, R.A.M.C.(T.F.)
Temporary Lieutenant William Linnell Partridge, R.A.M.C.
Temporary Lieutenant Michael Gladstone Pettigrew, R.A.M.C.
Temporary Captain Andrew Banks Raffle, M.D., R.A.M.C.
Temporary Captain Arthur Richmond, M.B., R.A.M.C.
Captain George Scott, M.D., R.A.M.C.(T.F.)
Captain James Alwin Colville Scott, R.A.M.C.(T.F.)
Captain Frederick Roland Studdart Shaw, M.B., R.A.M.C (S.R.)
Temporary Captain George Murray Shaw, M.B., R.A.M.C.
Captain Herbert Douglas Smart, R.A.M.C.(T.F.)
Captain William McElrea Snodgrass, M.B., R.A.M.C.(S.R.)
Temporary Captain Wilfred Newell Soden, M.D., R.A.M.C.
Captain Leonard Boole Stott, M.B., R.A.M.C.(T.F.)
Temporary Lieutenant David Campbell Suttie, M.B., R.A.M.C.
Captain George Pritchard Taylor, M.B., R.A.M.C.
Temporary Captain Francis Ruthven Thornton, R.A.M.C.
Temporary Captain Brian William Wibberley, M.B., R.A.M.C.
Temporary Captain David Llewelyn Williams, R.A.M.C.
Captain Maurice Joseph Williamson, R.A.M.C.
Temporary Captain Ivan Stuart Wilson, M.D., F.R.C.S., R.A.M.C.
Captain John Hutchinson Wood, M.B., R.A.M.C.(T.F.)
Temporary Captain John Miller Young, M.B., R.A.M.C.

Captain James Bentley, A.A.M.C.
Captain John Bright Birch, A.A.M.C.
Captain Arthur Edmund Colvin, A.A.M.C.
Captain Eric Mortley Fisher, A.A.M.C.
Captain John Thomas Jones, A.A.M.C.
Captain Charles Beverley Metcalfe, A.A.M.C.

Captain Angus Alexander Drinnan, C.A.M.C.
Captain Frederick William Lees, C.A.M.C.
Captain Robert Marsden Luton, C.A.M.C.
Captain James Ernest McAskill, C.A.M.C.
Captain William Freeman Nicholson, C.A.M.C.
Captain (acting Major) Paul Poisson, C.A.M.C.
Captain Walford Douglas Somerled Rorison, C.A.M.C.

El Yuzbashi (Captain) Musa Khouri Zakharia (Effendi), Egyptian A.M.C.
El Yuzbashi (Captain) Nasralla El Burgi (Effendi), Egyptian A.M.C.

Honorary Captain George Sandham, N.Z.M.C.

England and Wales.

THE object of the Local Government Emergency Provisions (No. 2) Act, 1916, which received the Royal assent on December 18th, is to save, during the period of the war, the clerical labour involved in making out and examining detailed annual claims for the pauper lunatic grants payable under the Local Government Act, 1888. This object is secured by making the grant one of fixed amount.

THE INSTITUTE OF MASSAGE AND REMEDIAL GYMNASTICS.

The Institute of Massage and Remedial Gymnastics, which has recently been established in Manchester, has now issued its syllabus of training. The training is for one year of thirty working weeks, and candidates will not be allowed to sit for examination unless they have attended at least two-thirds of the lectures and classes given by the training school they are attending and have done satisfactory practical work on *bona fide* patients under qualified supervision. If not trained nurses, candidates must hold the certificate of the British Red Cross Society or the St. John Ambulance Association in first aid and home nursing, and no candidate will be accepted under 19 years of age. At present teachers must either hold a recognized "teachers'" or the "two years' training certificate," or have been teaching previous to January, 1915, but, after January, 1919, the qualifications will be more restricted. Candidates will be required to pass an examination in the following subjects: Part 1. Anatomy and elementary physiology. Part 2. Theory of movement and remedial gymnastics—theory and practice of massage and bandaging and application of splints, and the examination will consist of written papers and oral and practical work. The fee for

the examination is three guineas and one certificate will be given which will include massage, remedial gymnastics, and mechano-therapy.

Milk Supply.

Last October the Lord Mayor of Birmingham, Mr. Neville Chamberlain, now Director of National Service, appointed a committee to inquire into the cause of the rise in price of milk in the city. The committee took evidence in confidence from farmers, dairymen, milk-chocolate manufacturers, railway officials, and others, and one of the members, Councillor Appleby, prepared valuable statistics. These and the text of the report itself have not been published, but the conclusions have been printed in the *Birmingham Daily Mail*. Though they have reference primarily to conditions affecting the supply of milk to Birmingham, they deal with matters of general application throughout England, and it has seemed well to reproduce them in full.

1. That the increased price paid by the consumer is the result of the cumulative demands of the farmer and distributor, the latter being frequently represented by both wholesale and retail milk dealers.
2. The increased demand of the farmer is due to the higher prices he has to pay for labour and for foodstuffs, and to the increased demand for milk, both for manufacturing and domestic purposes.
3. In so far as labour is concerned, we think the increased demand can be justified, as also in respect of the cost of concentrated food, but we are of opinion that in some cases, where the farmer is using his own home products for keeping his cows, he is getting a double profit—first on the products, and then on the milk. In our opinion the fair way of assessing the cost of the home products consumed by milk cows is to take the consumable value at two-thirds and not the current market price. In our judgement, when fixing the maximum selling price, the net cost, *plus* a reasonable profit, should be taken, and not, as in official statistics, the current market value.
4. On the evidence given to us it would appear that 1s. 3d. per gallon for milk delivered in Birmingham would be a fair winter price to pay the farmer, and would give him a profit.
5. That the farmers who are giving up milk producing and are merely fattening their beasts for the butcher have failed to realize that the breeding of calves and the production of milk are interdependent and essential to both the sale of meat and milk, and are vital in the national interests. The committee are of opinion that it would be advisable for the Board of Agriculture to consider whether a restriction could not be put on the slaughter of milk cows, unless they have been certified by a veterinary surgeon as past useful milking.
6. That the farmers are entitled to great consideration in the matter of labour, and should be helped by every one; but we deplore what we consider to be the unpatriotic and selfish tendency exhibited by some farmers of giving up milk producing in order to make larger profits out of other branches of farming. We believe that the action of the Board of Agriculture in encouraging the production of cheese offers a direct incentive to the farmer to use for this purpose milk that would otherwise come into large towns for domestic use.
7. The price of milk to the distributor has been increased by the action of milk condensers in purchasing milk from farmers for the first time during the mid-winter months.
8. On the evidence given us we think that the distributor with proper management is making a good profit on his business. It would appear that 6d. is a fair average margin for distribution. This would mean that the price to the customer should not exceed 5½d. per quart at the present time.
9. That it is advisable that milk should be delivered only once a day. We think in the winter at least this could be arranged.
10. That the consumer is suffering from the cumulative profits of several individuals, and it would materially help him if the middlemen could be eliminated.
11. That the price of milk fixed by the Order dated November 15th and December 15th, 1916, should be further considered by the Controller in the light of this report.

Surgical Aid Society.

At the fifty-fourth annual meeting of the Royal Surgical Aid Society held at the Mansion House, London, it was reported that nearly 24,000 patients had been relieved during the year, and that 36,000 appliances had been supplied. A slight reduction in the annual subscriptions had been more than made up by an increase in life subscriptions and payments by patients. Lieutenant-Colonel D'Arcy Power, F.R.C.S., spoke from personal observation of the large amount of valuable work which the society was carrying on, and said that from the professional point of view the system adopted by the society was eminently satisfactory, a surgeon's certificate being required in every case, so that patients were not fitted with unsuitable appliances. Mr. Laming Evans, F.R.C.S., in responding on behalf of himself and his colleagues to a vote of thanks to the surgical staff, said that each case was decided on its merits, and not all cases which went to the surgeons' room were fitted with an appliance; when it was considered more desirable, the patient was advised to go to a hospital for operation. Opportunity was also afforded to the patient's general practitioner to give his opinion.

Scotland.

Dr. Grace H. Giffen Dundas, at present acting as M.O.H. for Ramsgate, has been appointed medical superintendent under the child welfare scheme for Leith. Dr. Dundas took the triple qualification, Scotland, in 1894, and the diploma of F.R.C.S.I. and the D.P.H.Camb. in 1901. She received her medical training at the Medical College for Women, Edinburgh, where she was at one time senior demonstrator of anatomy.

Edinburgh Society for the Relief of Destitute Sick.

At the 131st annual meeting of the Society for the Relief of the Destitute Sick it was reported that its work had at first decreased after the outbreak of war, owing probably to enhanced wages and abundance of employment. As the war dragged on prices had increased in larger proportion than wages, and the outlay of the society on each case had increased. The amount distributed by the visitors, who paid 7,339 visits, was £2,409. The number of new applicants during the year was 976. The Lord Provost, who presided, said that the society was doing splendid work, which should not be overlooked by the benevolent public. Dr. J. W. Ballantyne, moving a vote of thanks to the visitors and the election of officers, said that the average number of visits was a little over twenty a day—all paid by gentlemen interested in the work. These visitors were to be looked upon as valuable auxiliaries of the medical profession in Edinburgh.

Child Welfare in Edinburgh.

Last July we gave an account of a very complete scheme for child welfare in Edinburgh prepared by Dr. Williamson. It was considered too large to be carried out in the present time of stress, but a modified scheme has now been adopted by the Public Health Committee. It provides for six centres for the treatment of defectives, for curative work, and for child clinics. It will be worked in line with the different dispensaries and other institutions for children, and will entail the employment of a number of nurses, superintendents, and clerks, to work under the medical officer of health. It is proposed to postpone the appointment of a medical superintendent owing to the fact that so many members of the profession are on active service. The estimated cost of the original scheme was £6,000, and of the modified scheme about £4,000.

"Craigleith Hospital Chronicle."

The first number of the *Craigleith Hospital Chronicle* appeared in December, 1914, and the present Christmas and New Year part completes the fourth volume of a publication which in its own way has ably "done its bit." The authoress of a bright and informative article on "Our Ally the Dog" is Eve Blantyre Simpson, the daughter of the late Sir James Young Simpson, of chloroform fame, and she has contrived to bring together a wonderful number of facts respecting the part our canine friends have played in wars, past and present. Dr. J. A. MacDougall continues his series of articles on "The Story of some Scottish Regiments," and deals in this part with the Gordon Highlanders. Poetry is not lacking, and there is a Hymn of Hate (the Craigleith one,) written by "Pip-squeak" of "Z" Ward; the thing hated is castor oil. A Sassenach gives his impressions of the wild revelry of Hallowe'en, with its ducking for apples amongst the navies of germs, which, he thinks, brought out Scottish heroism in a high light. The "Hospital Notes" are interesting, and the *Chronicle's* editor says, "We are sorry to have to record that Captain Rainy, who has so long been in charge of a number of medical wards, has been demobilized; he is, however, continuing to visit his old wards in a voluntary capacity." The 2nd Scottish General Hospital has every reason to be proud of its monthly magazine. (Annual subscription, 7s. 6d.)

Correspondence.

DUBLIN UNIVERSITY: PARLIAMENTARY REPRESENTATIVE.

SIR,—May we claim a small space in the JOURNAL in order to urge upon the members of the British Medical Association who are entitled to vote for a parliamentary representative of Dublin University to record their votes at the forthcoming election for Sir Robert Woods, who is standing as a non-party candidate?

It would be idle for us to dwell upon the advantages that the presence of a distinguished scientific representative like Sir Robert Woods in the House of Commons would confer upon the nation as a whole, and upon the medical profession in particular.

It must be obvious to the medical graduates of Dublin University that the legal profession has enjoyed more than its share of the parliamentary representation of the University, and a splendid opportunity is now offered whereby a change may be effected in this direction. Owing, however, to the large number of medical graduates who are serving their King and country in the various theatres of the present war, it will be extremely difficult to get into direct communication with many of the voters. We would therefore appeal to your readers to forward immediately, as a matter of urgency, to the address given below, the addresses of any Doctors of Medicine of Dublin University who are known to them to be absent from their usual home addresses, so that proxies may be sent to such voters.—We are, etc.,

A. FRANCIS DIXON,
Professor of Anatomy, Trinity College,
JAMES CRAIG,
King Professor of Practice of Medicine,
Hon. Secretaries.

24, Trinity College, Dublin, Dec. 30th, 1916.

MOBILIZATION OF THE PROFESSION.

SIR,—When a colleague of mine read out the letter signed "F.R.C.S.E." which appeared in your issue of December 30th, I was convinced that he had written it himself, so closely did it correspond to the account of our own experiences.

I quite agree with "F.R.C.S.E." that there are more than enough men in the R.A.M.C. at present to do all the work that is needed if their services were properly organized; and if it were not that I hesitate to make too large a call on your space I could give chapter and verse to prove this.

Personally I have now just completed my year, and if I had to do all the work I have done in that time again I could easily fit it into one month and have plenty of time for recreation or study.

It can be no question of my having fallen on a "soft job," as I have done practically every sort of job in my time, both at home and in France, with the exception of work in a casualty clearing station, where I believe the medical officers are generally overworked. I must acknowledge that during my stay of two months in an advanced dressing station I had two days of very strenuous duty, but the work I did could have been done quite as efficiently by any student dresser or well-trained orderly.

I think before any scheme of medical mobilization is started it would be well if the British Medical Association were to make inquiries about the men already serving, as to their duties and the conditions under which they work. If, after this, a better organization were instituted, I believe the needs of the army could be easily met by the men already enrolled, and even a number could be sent back to their practices. The War Office has been very generous in acknowledging the ready response of the personnel of the medical profession. Surely it will not object if an offer is made by the British Medical Association to help in making use of the material supplied.—I am, etc.,

December 31st, 1916. M.CH.

WILLIAM WATSON AND STEPHEN COLERIDGE.

SIR,—Admirers of Mr. William Watson will scarcely like to see his Muse humiliated by having to sing the praises of the ingenious Mr. Stephen Coleridge for "His Labours in Mitigation of Animal Suffering"—and, I may add, in aid of human suffering. The poem is, quite properly, placed in Mr. Watson's new book, called *Retrogression* (John Lane), and begins:

> Swordsman of Mercy, merciless to these
> Who feign that the All-Maker gladly sees
> His lowlier creatures racked and riven while man
> Buys with their agony a dreadful ease.

Surely "these" ought to be "those"—but for the rhyme; and the All-Maker can at any moment stop a practice of which He disapproves. But it is not clear whether the "dreadful ease" which man buys for himself at the cost of giving agony to animals refers to amelioration of sickness by experiments on them; or to satisfying hunger or gluttony by devouring them daily in millions; or merely to the mitigation of boredom by frightening, wounding, maiming, or killing them for sport. I hope that some commentator will some day elucidate this obscure passage, since, personally, I think that the antivivisectors care very little about "animal suffering" and are chiefly concerned to do as much injury to science as possible because it treads on the toes of their dogmas. Perhaps you will allow me to quote some humble verses of mine on the subject, which, while they show far less poetic inspiration than Mr. Watson's, are probably nearer the truth. They are taken from a little satire called *The Setting Sun* (John Murray, 1912), which I wrote on the state of Britain before the war. When talking of various kinds of cranks, I said:

> Or see that sham philanthropist
> The anti-omni-scientist.
> It is not wrong to gorge our gluttons
> Upon the tender young of muttons,
> Untimely torn, and piteous-eyed,
> Straight from their bleating mother's side;
> Nor wrong to skin the living mullet
> To make it red for gourmand's gullet;
> Nor cruel the quivering cod to crimp,
> To peg the lobster, boil the shrimp;
> To slaughter birds for women's hats,
> Or keep a million murdering cats;
> Or let the sportsman for his pleasure
> Kill, maim and injure without measure.
> But when great Science seeks to seize
> The dreadful secrets of disease,
> Th'impostor tells the British thickhead
> Her action is indeed most wicked.
> Better to let our children die
> Than hurt a mouse or kill a fly!

My suggestion was that the prevalence of the antiscience fad in Britain was a sign of mental "retrogression" rather than the reverse; and my satire has been largely justified by the experiences of the war.

Mr. Watson tells the subject of his eulogy that the poets are on his side. Tennyson might have been; but he also commended "believing where we cannot prove," which I, for one, consider dishonest. We must, however, really protest when Shakespeare is made to lead the applause of Mr. Stephen Coleridge!—I am, etc.,

London, W., Dec. 30th, 1916. RONALD ROSS.

PSYCHO-ANALYSIS.

SIR,—Dr. Mercier's paper on psycho-analysis in your issue of December 30th, 1916, is delightful reading, and I am sure voices the opinions of the great majority of British alienists, indeed so much so that one suspects Dr. Mercier of using his powerful pen for the purpose of setting up a bogey for the obvious pleasure of knocking it down, killing the slain. Surely it is notorious that the dirty doctrines of Freud, Jung and Co. have met with scant support among British psychiatrists either in their teachings or writings. Still it may be that Dr. Mercier is fully justified in his most able sledge-hammer attack on this most dangerous form of doctrine, in the light of a possible propaganda among lay teachers of children. There are always a huge number of Carlyle's fools, eager, open-mouthed to swallow "ground toads," "sour milk bacilli," Yankee religions, or pornographic abominations, if only duly sugar-coated with pseudo-science, not to mention the many weak-spined Britishers who, honouring no prophets of their own, hail those from Germany *in excelsis*. With the significant exception of writers on aberrations of the sex instinct, Krafft-Ebing, Bloch and Co., British alienists have much less to learn from Germans and Austrians than from the French and Italians; naturally if we want to

learn about moral leprosy we go to those who practise among moral lepers.

While agreeing with every word of Dr. Mercier's trenchant denunciation of the topsy-turvy futilities of so-called psycho-analysis, I think it is opportune to aver that British medicine has erred in the past in totally ignoring the very considerable influence of the sex instinct—one of the two great primal instincts of human, and indeed of all, beings—on the normal and abnormal emotional side of our nature; indeed, one could go further and assert that in the study of Mind, the predominant partner, the Intellect, had been studied without sufficient regard to the almost equally important Instincts and Emotions.

To bring this short appreciation of Dr. Mercier's paper to a close, I must congratulate him on his most ingenious and probably correct explanation of the origin and continuance of the cult of psycho-analysis, for no truly sane observer watching the growth and development of infants could possibly read into the food instinct its great twin the sex instinct, especially, *horribile dictu*, the aberrant incestuous variety of the latter.—I am, etc.,

D. G. THOMSON, M.D.,
President of the Medico-Psychological Association.

Thorpe, Norwich, Jan. 2nd.

SIR,—May I suggest that the famous phrase, "*Credo quia impossibile*," which occurs in Dr. Mercier's article on Psycho-analysis in the BRITISH MEDICAL JOURNAL of December 30th, 1916, should be attributed to Tertullian and not to Quintilian?—I am, etc.,

R. O. MOON.

London, W., Jan. 2nd.

THE PATHOLOGY OF CANCER.

SIR,—In connexion with a resuscitation of the parasitic theory of cancer, a belief from which I have myself never wavered, I may briefly recount the history of a "cancer house" from direct knowledge; I referred to it at the meeting of the Pathological Section of the Royal Society of Medicine when the communication by Professor S. G. Shattock and Dr. L. S. Dudgeon was made (December 5th, 1916).

The history concerns an old Georgian farmhouse in South Devon, lying somewhat low and surrounded by hills, with a stream running by one side and passing into a pond below the level of the front entrance. The house had several large cellars beneath it, which were always damp. All its rooms, but particularly the kitchen and the servants' quarters, were infested with mice. The farm and its buildings had been for many years in the possession of my family, but the house was usually occupied by tenants who were not members of the family. Among these several instances of malignant disease having been the cause of death were known, although I have unfortunately no details.

Some forty years ago a member of my family and his wife, a lady several years older than he, came to occupy the house. My family on his side is a long-lived one, and has been altogether free from malignant disease for at least two previous generations. Some eight years after this couple, who had no children, entered into possession, one of the elder female servants developed carcinoma of the mammary gland, and two years later the wife contracted carcinoma of the larynx and died in the house. About three years afterwards the husband, then forty years of age, who had remained in the house after his wife's death, became the subject of primary carcinoma of the liver. The house was subsequently tenanted by another family, of whom two members died within its walls from malignant disease; details of these cases I cannot furnish. The house has since been demolished.

From a purely clinical point of view, it has always seemed to me that malignant disease was in some way dependent upon an infective agent; and I have often wondered whether the domestic mouse, always with us and frequently fouling our food, might not be a carrier or intermediate host of a virus capable of producing sarcoma or carcinoma in the human subject.—I am, etc.,

W. MCADAM ECCLES, M.S., F.R.C.S.

London, W., Jan. 1st.

COMPULSORY LATIN.

SIR,—In your issue of December 30th, 1916, Sir Henry Morris and Dr. M. Greenwood, jun., bring forward arguments refuting the idea, which they seem to think I suggested in your issue of December 23rd, that a knowledge of Latin (and Greek) ensures that medical men will spell correctly.

It is a curious coincidence (I do not suppose that Sir Henry Morris and Dr. Greenwood collaborated) that each makes use of the word "ensure." Never for a moment did I imagine, and I certainly did not write, that a study of Latin and Greek would ensure correct spelling. There are, no doubt, certain people who never did and never will spell correctly. What I do maintain is that even a slight knowledge of Latin and Greek (such a knowledge, for example, as is attained by the average boy in the classical fifth form at our public schools) is likely to help towards the correct spelling of such words in our language as are directly derived from Latin and Greek—and how many such words occur in medical writings! Now the majority of the misspelt words quoted from Mitford by Sir Henry Morris are not, I think, directly derived from the "dead" languages in question; the majority of my "choice specimens" are so derived. Further, "such people as pharmaceutical chemists" are surely more likely to scrutinize and criticize the prescriptions, for example, of medical men than such volumes as Mitford's *Greece*.

As to the chief value of Latin and Greek in the curriculum I do not propose to argue; I may say, however, that I do not agree with Dr. Greenwood that "the real case in favour of imparting a knowledge of the classical tongues is that he who possesses such knowledge can enter at will into a world of thought and fancy," etc., any more than I imagine that the only use of such knowledge is to help men to spell. At the same time, apart from the training of the minds of our embryo medical students, I still believe that the study of Latin and Greek does possess this utilitarian property of making it more likely that those who have studied these languages will be able to spell such words as "diphtheria" and "unconscious."—I am, etc.,

DOUGLAS COW.

Cambridge, Dec. 31st, 1916.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

THE annual report of the University for 1916 states that the register of the General Council of the University for 1915 contained 12,654 names. The total number of matriculated students in 1916 was 1,741, of whom 1,060 were men and 681 women. There were 941 students (including 238 women) in the faculty of medicine. In that faculty 446 students, or over 47 per cent., belonged to Scotland; 143, or over 15 per cent., to England and Wales; 34 to Ireland; 79 to India; 216, or nearly 23 per cent., to British colonies and dependencies; and 23 to foreign countries. In spite of the inclusion of women students, the total number in the faculty of medicine showed a decrease of 112 as compared with 1915, of 788 as compared with 1914, and of 1,520 as compared with 1913. The number from the colonies and dependencies is 23 in excess of the number for 1915, the increase being accounted for by students from South Africa. Over 5,000 members of the University—graduates, officials, or past and present students—are serving, or have served, in His Majesty's Forces. A number of others are cadets in the University O.T.C., and a large number of graduates and undergraduates (men and women) are engaged in the production of munitions or in other branches of national service. Many honours have been gained by members of the University, and 250 are known to have given their lives.

The total value of the University fellowships, scholarships, bursaries, and prizes is over £21,000, and of this amount the faculty of medicin accounts for £5,565. Government grants amounting to £14,500 in respect of losses due to the war during the years 1914–15 and 1915–16, have been received by the University. Funds amounting to £18,000 have been transferred to the University Court by the Royal Victoria Hospital Tuberculosis Trust, with a view to the foundation in the University of a Chair of Tuberculosis.

The following degrees were conferred at the recent graduation ceremony:

M.D.—J. L. Annan, A. M. Caverhill, H. J. M'Caw, Captain H. MacCormac, R.A.M.C., Lieutenant W. M. W. Shepherd, R.A.M.C., J. Sorley, Captain M. Mackenzie, R.A.M.C.

M.B., B.S.—Janet C. P. Alison, Surgeon Probationer D. L. Baxter, R.N.V.R., W. C. Craig, Surgeon Probationer F. R. Cripps, R.N.V.R., J. A. Hadfield, Jeannie Harper, Jane E. Hay, Surgeon Probationer N. Jennings, R.N.V.R., G. C. M'Ewan, J. R. S. Mackay, P. D. M'Laren, Annie M. Madin, M. Morrison, J. S. Munro, Lieutenant T. P. Paar, R.A.M.C.(S.R.), F. O. Taylor.

Obituary.

JAMES LITTLE, M.D.Edin., M.D. (Hon. Causâ) Dubl., LL.D. (Hon. Causâ) Edin.,

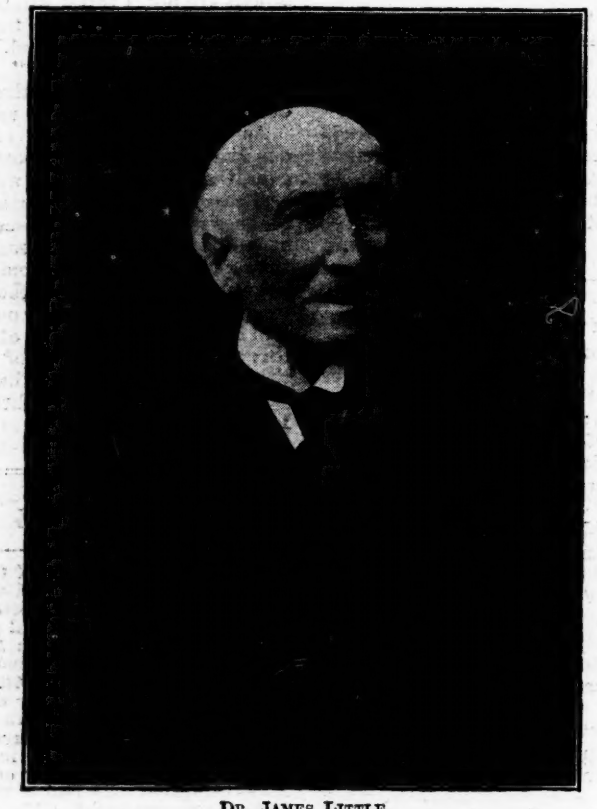
Fellow and ex-President Royal College Physicians in Ireland; Honorary Physician-in-Ordinary to H.M. the King in Ireland; Regius Professor of Physic in the University of Dublin

By the death of the veteran Dr. James Little, on December 23rd, 1916, the medical profession in Ireland has lost its *doyen*, and a personality remarkable in many ways has passed away.

The writer of this notice enjoyed his close friendship for fifty years, was his colleague for sixteen years, and entertained the liveliest feelings of gratitude and affection towards him. A few weeks before his death, when chatting with him in his study, the writer said to him: "I will remember the many acts of kindness and the help you gave me in my early career, and I will never forget it." Dr. Little similarly befriended other young men from time to time, and once your friend he remained ever your friend.

He hailed from the North of Ireland, for he was born in Newry on January 21st, 1837. He represented all the best qualities of an Ulsterman. Indeed, he was a happy blend of southern geniality with northern shrewdness, and was completely free from any touch of that brusque austerity which is sometimes accredited to the North of Ireland.

His life was varied and full of many activities. In 1856, just after he had obtained the diploma of L.R.C.S.I., he was placed for a time in charge of the Armagh County Infirmary, and was already held in high esteem by his seniors, Dr. Robinson of Armagh and Dr. James Cuming of Belfast. In 1861 he graduated M.D. of the University of Edinburgh. For three years he acted as surgeon in the service of the P. and O. Steam Packet Company, travelling to and from India, and the experience thus gained proved of great value in later life. He spent two years in private practice in Lurgan, and then devoted a year to post-graduate study on the Continent.



Dr. James Little.

Photograph by] [*Alfred Werner, Dublin.*

Shortly after this he took the decisive step in his life, and resolved to leave the narrower sphere of country practice, and to try his fortune in the larger arena of Dublin. In this city he became closely associated with Dr. Alfred Hudson, who recognized Little's ability, and was instrumental in his getting him appointed physician to the Adelaide Hospital, with which he was honourably connected as clinical teacher for forty-six years.

Nevertheless, at the end of his first year in Dublin, Little felt so doubtful of success that he once told the writer that he seriously thought of abandoning the venture. Fortunately, his native pluck stood to him; he rapidly gained ground, and in a few years came into the full fruition of his hard work. For many years he enjoyed an enormous and lucrative practice, and was the favourite consultant in all quarters of Ireland.

He was an admirable and impressive clinical teacher, and a brilliant and attractive lecturer on the practice of medicine. In this capacity he filled two chairs—first in the Ledwich School of Medicine, Peter Street, and later, in the Royal College of Surgeons in Ireland. In 1898 Dr. Little succeeded the late Sir John Banks, K.C.B., as Regius Professor of Physic in the University of Dublin, and during the sixteen years in which he occupied this chair he took a prominent part in the conduct of the Final Examinations in Medicine. He never allowed the calls of his private practice to interfere with the duties connected with his Regius Professorship, and even for the recent Final Examination, which began on December 11th, he set an examination paper, and only abandoned the conduct of the clinical examination at the last moment.

He was eminently a "clubbable" man, and was a member of five clubs: three in Dublin—namely, Dublin University, the Friendly Brothers of St. Patrick, and the exclusive Kildare Street Club—and two in London, the Junior Carlton and the Athenaeum.

He loved to enjoy the hospitality of his numerous friends, and in his own house played the frequent part of generous host and charming companion. Even towards the close of his life he was the leading spirit in all social functions, full of zest, and was one of the happiest and most humorous of after-dinner speakers.

Throughout his long life his mind preserved its youth, and he was ever quick to assimilate modern ideas, and could enjoy the discussion of scientific subjects which were novel to him, even if unable to criticize them.

In Dublin there exists a limited private medical society, called the Biological Club, which meets weekly for eight months of the year. Little was one of the most regular attendants at its meetings, made many valuable contributions, and enlivened its discussions by his genial wit and acute comments. So recently as last spring he read a most interesting account of the prolonged illness of one of his patients under the title of "The history of a heart." By the irony of fate the heart was the organ which gave way in his own case and led to his final decline and death.

In 1897 he was appointed Crown nominee for Ireland on the General Medical Council, and took a most active share in its proceedings. He was always listened to with attention and respect, and so popular was he with his fellows that, some years ago, he was within a point or two of being elected President of the Council. In spite of increasing infirmity and in opposition to the wishes of his medical advisers, he insisted on attending the recent meeting of the Council, so keen was his interest and so unfaltering his will power.

In addition to the other demands upon his time and energies, Dr. Little, in 1868, took up the onerous post of editor of the *Dublin Quarterly Journal of Medical Science*, and three years later he altered its publication to that of a monthly periodical, under the title of *The Dublin Journal of Medical Science*, and he never lost sight of its welfare long after he had retired from its active management. He did not write any book of signal importance, and his life will survive in the memory of his contemporaries rather than in medical literature.

He was warmly attached to the Royal College of Physicians of Ireland, and received from it every possible token of honour or office. For two years he zealously and courteously filled the responsible post of Registrar of the College, and in all matters of difficulty his wise counsels were highly esteemed by the College. He reigned as president of the College for two years—1886–88, and

steered its course with unfailing dignity, hospitality, and consummate tact.

In the year 1877 he was present at the inaugural meeting of the medical profession in Dublin for the establishment of the Dublin (late Leinster) Branch of the British Medical Association, and proposed at the meeting a resolution in favour of the project. When the Association of Physicians of Great Britain and Ireland held its annual meeting in Dublin some years ago, Dr. Little, as a matter of course, occupied the position of president. He was also a prominent figure at the celebrations which were held in 1912 to commemorate the bicentenary of the Medical School of Trinity College, Dublin.

When 35 years of age he married Anna, daughter of Robert Murdoch, who predeceased him in 1914. By her he had three children, who survive him, two sons and a daughter.

In sum, there have been greater and more illustrious physicians, but none who excelled, and few who equalled, James Little in gaining the esteem and affection of his friends and patients, and his memory will ever be cherished by all who knew him.

He was, in truth, the "beloved physician," and his motto with his patients was:

Aegroto, dum anima est, spes est.

W. G. S.

RICHARD BARWELL, F.R.C.S.,

CONSULTING SURGEON, CHARING CROSS HOSPITAL.

MR. RICHARD BARWELL died at Norwich on December 27th, 1916, aged 90. He had been for several years the senior Fellow of the Royal College of Surgeons of England, having taken that diploma in 1852 at the same time as the late Mr. Bryant of Guy's Hospital.

Richard Barwell was born in Norwich and studied medicine at St. Thomas's Hospital. He was dresser to Joseph Henry Green in 1847, and took the diploma of M.R.C.S. in October, 1848. He held the office of house-surgeon during the worst part of the great cholera epidemic—namely, July to September, 1849—and it fell to his duty to superintend the admission of cholera patients into the hospital. He was afterwards demonstrator of anatomy to the medical school of St. Thomas's Hospital, and in 1855 was appointed assistant surgeon to Charing Cross Hospital, becoming full surgeon in 1872. He retired, and was made consulting surgeon in 1888. He was lecturer in anatomy at the Medical School for several years, resigning in 1874; in 1878 he was appointed lecturer on surgery, an office he retained until his resignation of the surgeoncy to the hospital ten years later.

Barwell's first contribution to medical literature entitled "Asiatic cholera, its symptoms, pathology, and treatment," was based on his experiences in 1849. In 1857 his course of practical lectures delivered at the Working Women's College, Red Lion Square, on the "Care of the sick," showed that he was one of those who took part in the reform of the very faulty hospital and private nursing then prevalent.

Barwell contributed many papers to medical societies, journals, and encyclopaedic works. One of the subjects to which he gave particular attention was the treatment of aneurysm; he introduced the use of ox aorta as a ligature, and wrote a treatise on *Aneurysm, especially of the Thorax and Root of the Neck*, the main object of which was to show how, already in 1880, the introduction of asepticism had diminished the risks attendant on the surgical treatment of aneurysm. It is interesting to note that he used the term "asepticism," not "antisepticism," then more familiar to surgeons. He relates a terrible case under his own observation in 1847, where an eminent surgeon ligatured the carotid for aneurysm with fatal results. Pyaemia slowly developed, and though the ligature came away on the twenty-fourth day the patient, already septicized, lingered on for seven weeks. Such results were quite frequent in those days. Barwell's own successful operations where double distal ligature was practised for innominate aneurysm were duly recorded at the time. It was, however, chiefly as an orthopaedic surgeon, at a period when that department of practice was in its infancy, that Barwell was best known. He wrote a book on *Diseases of the Joints* and also on *The Cure of Club-foot without Cutting Tendons*, but the publication which made his name best known was his book on the *Causes and Treatment of Lateral Curvature of the Spine*, first published in 1868. In a fourth edition, issued in 1889, he described in full the mechanism of his scoliosis gauge, which quickly afforded concise measures of all deviations, and he declared in the fifth edition, published in 1895, that further experience had convinced him of its value.

Mr. Barwell married Miss Mary Diana Shuttleworth of Preston, Lancashire; and their son, Mr. Harold Shuttleworth Barwell, is surgeon for diseases of the throat and ear to St. George's Hospital.

MR. BUXTON SHILLITOE, F.R.C.S., died at his residence in Bournemouth on December 23rd, having attained his 91st year. His professional education began in 1849 at University College, and he took the diploma of M.R.C.S. in 1851. He did not, however, present himself for the examination for the Fellowship until 1860, so that he was not at the head of the list of Fellows which still includes several younger men who took the diploma at an earlier date. He practised for many years in the City of London, first in Finsbury Circus and afterwards in Frederick Place, Old Jewry. He was appointed surgeon to the London Lock Hospital in 1887. He resigned from the active staff in 1909, but he continued to keep his seat upon the board of management until his death. He was also on the surgical staff of the Great Northern Hospital. He devoted much attention to diseases of the genito-urinary tract, but did not contribute largely to medical literature. He devised a conical catheter which he described in the *Medical Times and Gazette* (vol. ii, 1860, p. 5). In 1864 Shillitoe first availed himself of the Zittmann treatment of the later forms of syphilis, which consisted in giving strong doses of decoction of sarsaparilla, followed by full doses of potassium iodide. The patient was usually kept in a room where a uniform high temperature was maintained. He appears to have used this treatment with excellent results. Buxton Shillitoe was fond of the study of botany, and was well known at the Linnean Society, of which he was a Fellow.

MR. JOHN EWENS of Clifton, Bristol, who died on December 15th, 1916, aged 86, was the son of Mr. George Davy Ewens of Axminster. He received his medical education at St. George's Hospital, and took the diplomas of L.R.C.P.Edin. and L.S.A. in 1851, and that of L.R.C.P.Lond. ten years later. After practising in Dorset for a quarter of a century he removed to Bristol, where he held the post of surgeon to the Bristol Royal Hospital for Sick Children from 1876 to 1896, when he was appointed consulting surgeon. He was especially interested in orthopaedic surgery, and particularly in deformities and derangements of the foot. He was an honorary member of the British Orthopaedic Society, and a member of the British Medical Association, and had filled the office of vice-president of the Dorset and West Hants Branch.

The Services.

EXCHANGES.

OFFICER serving with Field Ambulance in Egypt wishes to exchange with officer at present at home. Hospital if possible. Lieutenant or Captain. Address, No. 101, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), M.O. Battalion R.E., one year in France, desires exchange to Ambulance Train (in England preferred).—Address, No. 9043, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical officer, Yeomanry regiment, East Coast, in England since 1914, wishes to exchange with medical officer abroad (Territorial).—Address, No. 99, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), stationed at hospital near London, desires exchange with Sanitary Officer abroad. Has D.P.H. and experience of sanitation.—Address, No. 98, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain, R.A.M.C.(S.R.), Bacteriologist in charge of Mobile Laboratory in France, twenty months' service abroad, wishes to arrange exchange with bacteriologist in hospital or district laboratory at home. Opportunity for good work and healthy neighbourhood essential.—Address, No. 97, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), medical officer attached Brigade R.F.A., eighteen months in France, desires exchange to Ambulance Train (England).—Address, No. 93, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

THE Hospital for Deformities and Joint Diseases, New York, has received from Mr. Herbert Kauffman, of Pittsburg, a gift of £200,000, to be used for the erection of a new building and as an endowment fund.

Medical News.

The King has granted to the following gentlemen his licence and authority to accept and wear the decoration of the Third Class of the Order of the Nile conferred upon them by His Highness the Sultan of Egypt in recognition of valuable services rendered: Dr. William Hawkins Wilson, Professor of Physiology at the Government School of Medicine, Cairo; Dr. Herbert William Dudgeon, Director of the Lunatic Asylum, Khanka, near Cairo; Dr. A. Ferguson MacCallan, Director of the Ophthalmic Hospitals, Egypt; Dr. Percy G. S. Williams, Director of Section, Public Health Department, Cairo; Dr. James Ferguson Lees, Medical Officer, Public Health Department; Dr. William Hastings, Director of Section, Public Health Department, Cairo; and Dr. Thomas Bogie Hamilton, M.B., medico-legal expert, Native Parquet, Cairo.

It is announced that Professor W. Kolle, head of the Berne Institute of Hygiene and Bacteriology, has been appointed director of the Frankfort Institute for Experimental Therapy in succession to the late Paul Ehrlich.

The Russian Society for the protection of mothers and infants, which is under the patronage of the Czarina, has established a new periodical, entitled "Protection of Motherhood." It is published at Petrograd (Nicolaiewskaia, 49). Two numbers have already been issued, and the journal will continue to appear monthly during 1917.

A discussion on the physical welfare of children after infancy from the national, social, and public health standpoints, will be opened by Dr. W. Leslie Mackenzie, medical member, Local Government Board for Scotland, at a meeting of the Royal Sanitary Institute (90, Buckingham Palace Road), on Wednesday, January 31st. The chair will be taken by Sir George Newman, Chief Medical Officer, Board of Education, at 4.30 p.m.

We announced a short time ago that the Belgian War Ministry had decided to begin the publication of a periodical with the title *Archives Médicales Belges*, to contain reports of the exiled Belgian nation. We learn from the editors that the first number will appear towards the end of January, and that it will be printed by disabled soldiers attending the Institut Militaire Belge de Reéducation professionnelle at Vernon.

The following arrangements have been made between the Serbian Legation in London and the Serbian Relief Fund with regard to the administration of funds collected in Great Britain for the benefit of the Serbs; the Legation is the representative in Great Britain of the Fund for the Serbian Red Cross Society, and the Fund for Serbian Distress in the War is administered by the Serbian Minister in London, who sends help where it is most urgently needed. The Serbian Relief Fund (5, Cromwell Road, S.W.) works under a British Executive Committee, and has now added to its former work a fund for the education of Serbian boys in England and the St. Helen's Fund for Serbian Orphans. Donations sent to the Serbian Legation (195, Queen's Gate, London, S.W.) will be acknowledged by the Serbian Minister, and donors are asked to state for which of the two funds their gifts are intended. The Legation will be pleased to answer inquiries.

Some further particulars of the system of rationing invalids in Germany can be gathered from a letter published in the *Muenchener medizinische Wochenschrift*. The organization is controlled by a central committee, which issues a form upon which a doctor is required to enter full particulars as to diagnosis, complications, duration of illness, anticipated ill effects from deprivation, character of the food required—milk, eggs, butter, meat, meal, or meal-containing foods—and the period for which the rations would be needed. The doctor was required to forward the form to the central office without disclosing to the patient the particulars he had given on it. In this way the onus of refusal was transferred from the doctor to the central tribunal. The scheme, like a good many other schemes devised by the Germans in an emergency, would not work. The population began to search for symptoms which would justify them in applying for invalid dietary; and although the scheme was introduced in the summer, when privation would be least felt and the health of Berlin is generally good, the curve of morbidity rose rapidly. Greater Berlin, it is said, provided 100,000 claims for sick rations within a short time, and the doctors were placed in a very invidious position, for although the ultimate decision rested with the committee, every doctor was expected to sift the claims, and to reject at once those unwarranted in order to prevent the committee being overwhelmed with work.

Letters, Notes, and Answers.

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

The telegraphic addresses of the British Medical Association and Journal are: (1) EDITOR of the British Medical Journal, *Aitiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

G. P. desires to hear of a school where the daughters of medical practitioners are received on special terms.

Income Tax.

J. H. is entitled to allowances for abatement, etc., which exceed his military pay for the present financial year. That pay has not been taxed, but only the excess of his allowances over the pay has been allowed in calculating the tax on his civil income. He will thus have no benefit from the provision of a special military rate of tax.

*** We regret to say that our correspondent seems to have no remedy. The case is covered by Sec. 30 (2) of the Finance Act, 1916, extending to the special rate the operation of Sec. 19 (2) of the Finance Act, 1907. In effect these provisions lay down the principle that all allowances shall be made primarily from that portion of the income which is taxable at the lowest rate.

LETTERS, NOTES, ETC.

British Surgical Instrument Firms.

An incidental reference to Frederick Weiss in a note in the Journal (December 30th, p. 924) might be misunderstood to imply that we supposed that the business of John Weiss and Son, Ltd., had ceased. This, of course, is not the case, although it is now a limited company which is entirely British; the last Weiss associated with it (a grandson of the founder) died some years ago. The Frederick Weiss mentioned in our note was, we are informed, the son of the John Weiss, inventor of the screw lithotrite, who founded the business in 1787.

Garlic in Leprosy.

Mr. A. D. J. Edal-Behram (Surat, India) writes: In your issue of October 21st, 1916, Colonel Sir Leonard Rogers proposes to commence research on the action of gynocardates on the human acid-fast bacillus of tuberculous disease. May I most respectfully beg to point out that oleum allii (oil of garlic) has been shown to have a complete destroying action on tubercle bacillus by Professor Poore, Professor Cavazzani of Vienna, Dr. McDuffie of Metropolitan Hospital of New York, Dr. Minchin of Dublin, and others? Under the circumstances, would it not be worth while to try oleum allii (oil of garlic) on leprosy and investigate its action on Hansen's bacillus? Garlic can be had more easily than chaulmoogra. Colonel Sir Leonard Rogers will be the best man for it, looking to the facilities he has at Calcutta.

Appendicitis and Enamelled Ware.

Dr. Walter G. Walford (South Hampstead, N.W.), writes: My son recently returned from the front with an enamelled iron teacup such as I learn is served out in camp for ordinary use. Now enamel is practically glass, and this stuff is extensively flaking off both the interior and exterior of the cup, and would wash down the throat with every mouthful of liquid swallowed. Appendicitis was almost unknown before this ware was brought into use. If we wanted to give our brave soldiers appendicitis, could we better ensure it than by supplying such cups?

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

Note.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.